

Investigation of the Relationship between Novel Coronavirus (COVID-19) Anxiety and Mental Toughness in Professional Volleyball Players

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Abstract

In the study, the relationship between anxiety about catching the new type of coronavirus (COVID-19) and mental resilience in professional volleyball players was examined. This study is in the descriptive survey model, which is one of the quantitative research methods. The study was carried out with a total of 209 athletes, 145 females and 64 males, who are within the scope of the 1st league clubs of the Turkish Volleyball Federation (TVF). The data were collected with the “Anxiety Scale of Catching a New Type of Coronavirus” developed by Demir et al (2020) and the “Mental Endurance Inventory in Sports” developed by Sheard et al (2009) and adapted into Turkish by Altıntaş and Koruç (2016). The collected data were analyzed with the Skewness and Kurtosis test, and as a result of the examination, it was determined that the data showed a normal distribution. Student T-Test and One-Way Analysis of Variance (ANOVA) tests, which are parametric tests, were used in the analysis of the data. Pearson Correlation Analysis was used to examine the relationship between athletes’ anxiety

about catching the new type of coronavirus and their mental toughness. SPSS 21.0 statistical package program was used for all statistical analyzes and statistical significance level was taken as $p < 0.05$ in all analyzes. According to the results of the analysis, there is a statistical significance between the anxiety of the athletes about catching the new type of coronavirus and the age variable. A statistically significant difference was found between the mental endurance levels of the athletes and the variables of gender, age, monthly income and weekly training number. According to the results of the correlation analysis, a statistically significant relationship was not determined between the anxiety of catching the new type of coronavirus and the mental endurance characteristics of the athletes. A negative and low-level significant relationship was found between the individual anxiety values of the athletes and their control scores. As a result, it was determined that professional volleyball players' anxiety about catching a new type of coronavirus was not related to their mental toughness levels, but the athletes' individual anxieties were related to their control levels. In this regard, it is recommended that professional athletes receive mental support in order to keep their anxiety levels under control during the coronavirus process.

Keywords: Anxiety, Coronavirus, Mental toughness, Volleyball

1. Introduction

Volleyball is “a sport played by dividing a field plane by means of a net and placing two teams on the playing field opposite each other” (FIVB, 2017). Erhan (1995), on the other hand, defined volleyball as “a game with variable tempo, which differs from many sports branches in that it is indefinite, requires endurance and strength development due to its long duration, and includes features such as reaction and agility”. The volleyball branch, which does not require physical contact and has a high viewing pleasure, contains some factors and therefore requires the athletes to become fully equipped both physically and psychologically. Especially the psychological states of the athletes can greatly affect their performance (Erkal et al., 1998; Karacabey and Paşaoğlu, 2016). Moreover, features such as mental toughness, anxiety, stress, and motivation are thought to be effective on the performance of the athlete (Artok, 1994; Karacabey & Paşaoğlu, 2016).

Mental toughness is defined as “the ability to perform at the best level despite all the challenging conditions that arise during competition” (Loehr, 1986). Athletes with a high level of mental toughness are individuals who can camouflage minor injuries, show self-sacrifice, work systematically towards reaching the goal, and have a strong sense of struggle against adverse conditions (Gucciardi & Gordon, 2011; Tibbert et al., 2015). Anxiety level is thought to be an important factor for athletes as much as the concept of mental toughness.

The concept of anxiety is defined as “a concept that provides awareness against the dangers created by the society and facilitates adaptation” (Geçtan, 1999). According to the Turkish Language Association, anxiety is defined as “pain, worry and creative thought”. In a broader sense, anxiety is the state of having to face an unknown situation (TDK, 2021). Moreover, anxiety is a contagious type of emotion that is open to interaction with the environment and requires maintaining a level of control. Due to this intensity of emotion, individuals tend

towards wrong attitudes and may have difficulty in applying the movements they have experienced many times before. Such negative emotional states can also be seen frequently in sports and athletes (Güleç & Köroğlu, 1997; Karacabey & Paşaoğlu, 2016).

The pressure and difficulties that the athletes are exposed to during their competitions cause anxiety and stress. As a matter of fact, many athletes cannot show the performance they show in training due to the pressure and stress they experience during the competition. Many coaches and technical team members complain about this situation (Lewthwaite, 1990; Engür, 2002). In fact, the fact that an athlete experiences many emotional states such as being restless, sad, and uneasiness during the competition reveals the attitude of an anxious athlete during the sportive action. Especially within the scope of team sports, this situation disrupts the harmony of the team and causes failure (Gümüş, 2002).

Today, the sports world is struggling with the new type of coronavirus (COVID-19) epidemic within the scope of both individual and team sports. This new type of virus, which brings its effects with it, causes athletes, managers and trainers to encounter many negative situations. So much so that while many sports activities such as Tokyo Olympics and Euro 2020 are postponed in the world (Mann et al., 2020), the gradual suspension of all sports activities in Turkey makes the importance of the process visible (Ministry of Health, 2020; 2021; TÜBA, 2020). It is known that the suspension, postponement or cancellation of sports activities are manifested by different emotional states such as anxiety, stress, intolerance, and fear in athletes who are involved in team sports (football, volleyball, etc.) and individual sports (tennis, swimming, etc.) (Şahinler et al., 2020). In this context, the aim of this study is to examine the relationship between the anxiety of catching the new type of coronavirus (COVID-19) and mental resilience in male and female professional volleyball players in the 1st league clubs of the Turkish Volleyball Federation (TVF) in the 2020-2021 season.

2. Method

2.1 Research Model

In this study, a descriptive relational survey model, which is one of the quantitative research methods, was used. In quantitative research, events and situations are measured by making different individuals open to the senses in such a way that they unite on a common denominator. The scanning method, on the other hand, is a model that aims to describe the existing situation without making any changes (Karasar, 1999).

2.2 The Universe of the Research

The population of the research consists of professional female and male volleyball players in Turkey. Therefore, the sample of the research consists of 209 athletes, 145 females and 64 males, who play volleyball in the 1st league clubs of the Turkish Volleyball Federation. In the study, due to the limited number of male and female athletes in TVF 1st league volleyball clubs, it was tried to reach the entire population by using the full count technique. The full counting technique is defined as ‘a method applied to the population that covers the accessible level of the measurement tools (scale, etc.) to be used in the study’ (Dura, 2005).

In the research, the scales were delivered to a total of 480 athletes, 240 females and 240 males, playing volleyball in the 1st league clubs affiliated to the Turkish Volleyball Federation in the 2020-2021 season. Among the athletes who were applied the scale, 209 athletes, 145 females and 64 males, returned.

2.3 Data Collection Phase

2.3.1 Personal Information Form

In order to reach the demographic information of the participants, a ten-item personal information form (gender, age, education level, mother's education level, father's education level, monthly income status, sports year, being a national athlete, weekly training number, position in the team) was used.

2.3.2 Athletes' Anxiety of Catching New Type Coronavirus (COVID-19) Scale (AACNTCS)

In order to measure the anxiety levels of the athletes about catching the new type of coronavirus, the "Athletes' Anxiety Scale for Catching New Type Coronavirus (COVID-19)" (AACNTCS), which was validated and reliable by Demir, Cicioğlu, and İlhan (2020), was used. The scale consisted of 16 items in total, including 5 items (12, 13, 14, 15, 16) for social anxiety and 11 items for individual anxiety (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11), and consists of two sub-dimensions. The scale is in five-point Likert type. In the scale scoring, the items were stated as "I strongly disagree ... I totally agree" and were graded as "1 ... 5". The scale includes reverse item (2nd item). As a result of the internal consistency analysis of the scale, $\alpha = .92$ for the total scale, $\alpha = .90$ for the individual anxiety factor, and $\alpha = .84$ for the socialization anxiety factor (Demir et al., 2020). In the study; it was determined that the internal consistency coefficient of AACNTCS was $\alpha = .88$, $\alpha = .88$ for individual anxiety factor, $\alpha = .76$ for socialization anxiety factor.

2.3.3 Mental Toughness Inventory in Sport (MTIS)

The Mental Toughness Inventory in Sports was developed by Sheard et al. (2009) and adapted into Turkish by Altıntaş and Koruç (2016). MTIS; It consists of 3 sub-dimensions and 14 items that determine the sub-dimensions of trust (1, 5, 6, 11, 13, 14), continuity (3, 8, 10, 12) and control (2, 4, 7, 9). The scale contains reverse items (2, 4, 7, 8, 9, 10). The scale is in 4-point likert type. 1 = Totally False ... 4 = Totally True. As a result of MTIS reliability analysis, alpha reliability coefficients were $\alpha = .84$ for the confidence sub-dimension; $\alpha = .51$ for the continuity sub-dimension; $\alpha = .79$ for the control sub-dimension (Altıntaş and Koruç, 2016). In the study; the internal consistency (Cronbach 's Alpha) reliability coefficient of the MTIS is $\alpha = .64$, for the confidence sub-dimension $\alpha = .79$, for the continuity sub-dimension $\alpha = .55$, for the control sub-dimension $\alpha = .62$.

2.4 Methods Used

The data were collected from the sample group through the Athletes Anxiety of Catching New Type Coronavirus (COVID-19) Scale, the Mental Toughness Inventory in Sports, and the personal information form developed by the researcher. The scales were administered to the participants by random sampling. The applied scales were collected from the participants

via social media and internet (Whatsapp, Google Drive).

2.5 Analysis of Data

The data collected from the participants were examined with the Skewness-Kurtosis test, which is one of the normality tests, and as a result of the examination, it was determined that the data were between -2 and +2 values. According to George and Mallery (2016), it is assumed that the data is between -2 and +2 as a normal distribution. In this direction parametric tests Student T-Test and single directional variance analysis (ANOVA) was applied. Groups between multiple from the Post-Hoc Tukey test in comparisons has been used. Pearson's Correlation Analysis was used to determine the relationship between the anxiety of catching the new type of coronavirus and the mental toughness levels of the athlete's playing volleyball at the 1st league level. SPSS 21.0 statistical package program was used for the analysis of the data in the research. The research findings were given as the number of people (n), mean (\bar{x}), and standard deviation (sd), and differences at the 0.05 significance level were considered significant.

3. Results

Table 1. Demographic characteristics of athletes

			n	%
Gender	a	Female	145	69.4
	b	Male	64	30.6
Age	a	15-19	23	11.0
	b	20-24	97	46.4
	c	25-29	64	30.6
	d	30 years and older	25	12.0
Educational Status	a	Primary and Secondary Education	29	13.9
	b	Associate/Undergraduate	172	82.3
	c	Master/PhD	8	3.8
Mother Education Status	a	Primary and Secondary Education	185	88.5
	b	Associate/Undergraduate	24	11.5
Father Educational Status	a	Primary and Secondary Education	157	75.1
	b	Associate/Undergraduate	52	24.9
Monthly Income Status	a	TL 1000-3000	20	9.6
	b	TL 3001-5000	72	34.4
	c	TL 5001-7000	62	29.7
	d	TL 7001 and more	55	26.3

Sports Year	a	5- 9	40	19.1
	b	10-14	80	38.3
	c	15 and over	89	42.6
Status of Being a National Athlete	a	Yes	39	18.7
	b	No	170	81.3
Number of Trainings per Week (Day)	a	5	32	15.3
	b	6 and above	177	84.7
Position in the Team	a	Setter	23	11.0
	b	Spiker	71	34.0
	c	Setter Diagonal	20	9.6
	d	Middle Player	52	24.9
	e	Libero	43	20.6

Note. TL: Turkish lira.

Table 1 shows the distribution of the research sample in terms of demographic variables. According to Table 1, the participation number of female athletes was determined as 145 (69.4%) and 64 (30.6%) male athletes. When the age variable was examined, it was determined that there were 23 (11.0%) athletes in the 15-19 age range, 97 (46.4%) in the 20-24 age range, 64 (30.6%) in the 25-29 age range, and 25 (12.0%) athletes aged 30 and older. When the education level of the athletes is examined, it is seen that there are 29 (13.9%) athletes at primary and secondary education level, 172 (82.3%) at associate/undergraduate level, and 8 (3.8%) master/PhD students. While the number of participation in the mother education level of the athletes was 185 (88.5%) at the primary and secondary education level, 24 (11.5%) at the associate/undergraduate level, 157 (75.1%) at the primary and secondary education level in the father education level variable, 52 (24.9%) at the associate/undergraduate level was determined. When the monthly income status variable is examined, the number of participations of the athletes in the range of TL1000-3000 is 20 (9.6%), 72 (34.4%) in the range of TL3001-5000, 62 (29.7%) in the range of TL5001-7000, 55 (26.3%) in the range of TL7001 TL and more. When the sports year variable of the athletes is examined, the number of participants was determined as 40 (19.1%) for 5-9 years, 80 (38.3%) for 10-14 years and 89 (42.6%) for 15 and over. For the variable of being a national athlete, yes 39 (18.7%) and no 170 (81.3%) participants. When the weekly training number variable is examined, it is seen that the number of participants is 32 (15.3%) for 5 days, 177 (84.7%) 6 and above. When the position variable of the athletes in the team is examined, it is seen that there are 23 setter (11.0%), spiker 71 (34.0%), setter diagonal 20 (9.6%), middle player 52 (24.9%), libero 43 (20.6%).

Table 2. Descriptive statistics of anxiety scores of athletes catching new type of coronavirus and mental toughness inventory scores in sports

Independent Variable	Category	Anxiety of Catching Coronavirus							Mental Toughness in Sports							
		Individual Anxiety			Socialization Anxiety		Total Points		Confidence		Control		Continuity		Total Points	
		n	\bar{x}	sd	\bar{x}	sd	\bar{x}	ss	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd
Gender	Female	145	38.5	8.14	14.9	4.24	53.4	10.9	17.6	2.98	15.0	2.07	12.7	1.21	45.4	4.58
	Male	64	37.4	8.42	15.3	3.20	52.8	10.4	19.3	2.70	15.1	2.71	12.8	1.09	47.7	4.45
Mother Education Status	Primary and Secondary Education	185	37.8	8.19	15.3	3.78	53.1	10.7	18.2	3.09	15.1	2.28	12.7	1.10	46.0	4.66
	Associate-Undergraduate	24	41.1	8.00	13.0	4.60	54.1	11.2	17.8	2.13	14.5	2.24	13.1	1.67	45.5	4.35
Father Educational Status	Primary and Secondary Education	157	38.0	8.39	15.3	3.97	53.3	11.1	18.3	3.19	14.9	2.31	12.7	1.15	46.0	4.82
	Associate-Undergraduate	52	38.5	7.75	14.4	3.85	52.9	9.63	17.7	2.24	15.3	2.18	12.8	1.26	45.9	3.97
Number of Trainings per Week	5	32	37.3	9.81	14.2	3.44	51.5	11.9	16.0	3.24	14.6	2.49	13.0	1.22	43.8	5.24
	6 and above	177	38.3	7.92	15.2	4.02	53.6	10.5	18.5	2.79	15.1	2.24	12.7	1.16	46.4	4.39
Status of Being a National Athlete	Yes	39	38.9	8.64	14.8	5.67	14.8	5.67	18.6	4.03	14.9	2.48	12.5	1.51	46.2	6.24
	No	170	38.0	8.14	15.1	3.45	15.1	3.45	18.0	2.70	15.0	2.24	12.8	1.09	45.9	4.18

Table 3. Descriptive statistics of anxiety scores of athletes catching new type of coronavirus and mental toughness inventory scores in sports

Independent Variable	Category	Anxiety of Catching Coronavirus						Mental Toughness in Sports									
		Individual Anxiety			Socialization Anxiety			Total Points		Confidence		Control		Continuity		Total Points	
		n	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	\bar{x}	sd	
Age	15 – 19	23	36.6	8.23	15.6	4.72	52.2	12.2	16.7	3.22	14.0	2.83	12.7	1.45	43.4	4.91	
	20- 24	97	39.7	8.57	15.4	3.75	55.1	11.1	18.3	2.83	15.4	2.10	12.6	1.14	46.4	4.24	
	25- 29	64	38.2	7.50	14.7	3.88	52.9	10.1	17.8	3.07	14.5	1.98	12.8	1.11	45.2	4.41	
	30 years and older	25	33.8	7.12	14.1	4.11	48.0	7.99	19.6	2.54	16.0	2.55	13.0	1.20	48.7	4.86	
	Total	209	36.6	8.23	15.0	3.95	53.2	10.8	16.7	3.22	14.0	2.83	12.7	1.45	46.0	4.62	
Educational Status	Primary and Secondary Education	29	40.2	9.43	17.1	4.78	57.3	13.3	17.6	4.26	14.9	2.94	12.3	1.42	45.0	6.23	
	Associate/Undergraduate	172	37.9	8.00	14.7	3.70	52.6	10.2	18.2	2.75	15.0	2.18	12.8	1.13	46.1	4.39	
	Master/PhD	8	37.0	8.2	15.1	4.12	52.1	10.8	18.6	2.56	15.3	2.06	12.2	.886	46.2	1.66	
	Total	209	38.2	8.22	15.0	3.95	53.2	10.9	18.1	2.99	15.0	2.28	12.7	1.18	46.0	4.62	
Monthly Income Status	TL1000-3000	20	37.5	9.12	16.5	3.94	54.0	11.6	16.3	3.16	14.0	2.65	12.3	.923	42.6	4.22	
	TL3001-5000	72	39.0	7.90	15.2	3.98	54.3	10.8	18.3	3.03	15.4	1.93	12.6	1.08	46.4	4.44	
	TL5001-7000	62	38.2	7.40	14.6	4.04	52.8	10.4	18.5	2.76	15.2	2.10	12.7	1.28	46.6	4.09	
	TL7001 and more	55	37.2	9.22	14.8	3.76	52.0	10.9	18.1	2.98	14.7	2.64	13.0	1.20	46.0	5.11	
	Total	209	38.2	8.22	15.0	3.95	53.2	10.8	18.1	2.99	15.0	2.28	12.7	1.18	46.0	4.62	
Sports Year	5- 9	40	36.0	9.95	14.8	3.97	50.8	12.8	17.4	3.28	15.1	2.83	12.8	1.27	45.3	4.96	
	10-14	80	39.3	8.09	15.4	3.65	54.7	10.5	17.8	2.83	14.8	2.27	12.8	1.06	45.4	4.42	
	15 and over	89	38.2	7.3	14.8	4.21	53.0	9.89	18.8	2.89	15.2	2.01	12.7	1.25	46.8	4.55	
	Total	209	38.2	8.22	15.0	3.95	53.2	10.8	18.1	2.99	15.0	2.28	12.7	1.18	46.0	4.62	
Position in the Team	Setter	23	40.9	8.40	15.0	3.35	12.7	1.57	18.3	3.66	14.2	2.41	12.7	1.57	45.2	5.13	
	Spiker	71	37.1	9.09	15.4	4.73	12.6	1.12	17.8	3.19	15.0	2.19	12.6	1.12	45.5	4.47	
	Opposite Setter	20	40.9	6.62	15.0	4.19	12.5	1.35	17.3	2.55	14.8	2.19	12.5	1.35	44.6	4.44	
	Middle Player	52	38.3	7.66	15.1	2.79	12.7	1.17	18.2	2.79	15.3	2.48	12.7	1.17	46.3	5.02	
	Libero	43	37.0	7.63	14.3	3.98	13.0	.921	19.0	2.56	15.3	2.13	13.0	.921	47.4	3.89	
	Total	209	38.2	8.22	15.0	3.95	12.7	1.18	18.1	2.99	15.0	2.28	12.7	1.18	46.0	4.62	

Note. TL: Turkish lira.

Table 4. T-Test results regarding the differences in anxiety scores of athletes catching new type coronavirus and mental toughness scores in sports according to independent variables

Independent Variable	Anxiety of Catching Coronavirus						Mental Toughness in Sports							
	Individual Anxiety		Socialization Anxiety		Total Point		Confidence		Control		Continuity		Total Point	
	t	p	t	p	t	p	t	p	t	p	t	p	t	p
Gender	.842	.401	-.675	.500	.393	.694	-3.86	.001*	-.220	.827	-.687	.495	-2.76	.006*
Mother Education Status	-1.85	.064	2.78	.006*	-.403	.687	.524	.601	1.29	.197	-1.12	.271	.584	.560
Father Educational Status	-.355	.723	.830	.166	.921	.814	1.29	.197	-.946	.345	-.770	.442	.173	.863
Number of Trainings per Week (Day)	-.643	.521	-1.34	.180	-.981	.328	-4.46	.001*	-1.19	.236	1.66	.098	-2.99	.003*
Status of Being a National Athlete	.603	.547	-.305	.762	.270	.788	.934	.355	-.280	.780	-.887	.380	.278	.783

Note. * $p < 0.05$.

In the study, no significant difference was found between volleyball players' gender, father's education level, number of weekly training sessions and the distribution of being a national athlete, between the total anxiety levels of catching the new type of coronavirus and the mean scores of individual anxiety and social anxiety sub-dimensions ($p > 0.05$). While no significant difference was found between the anxiety of catching coronavirus and the individual anxiety total item mean scores according to the maternal education level of the athletes ($p > 0.05$), a significant difference was found between the social anxiety sub-dimension total item mean scores ($p < 0.05$).

In the study, no significant difference was found between the total item score averages of volleyball players' mental toughness levels in sports according to their mother's education level, father's education level and their status as a national athlete ($p > 0.05$). While no significant difference was found between the control and continuity sub-dimension total item score averages of the inventory in terms of gender and the number of weekly training variables ($p > 0.05$), it was determined that there was a significant difference between confidence sub-dimension and mental toughness total item score averages ($p < 0.05$).

Table 5. One-Way Analysis of Variance (ANOVA) results of toughness scores in sports according to independent variables

Scales and Sub-Dimensions	Age			Education Status			Monthly Income Status			Sports Year			Position in the Team	
	F	P	Deff.	F	P	Deff.	F	P	Deff.	F	P	Deff.	F	P
Individual Anxiety	3.81	.011 *	b > d	1.08	.342	-	.539	.656	-	2.18	.115	-	1.69	.154
Social Anxiety	.938	.423	-	4.60	.011 *	a > b	1.35	.256	-	.563	.571	-	.530	.714
Anxiety of Catching Coronavirus Total Points	3.06	.029 *	b > d	2.41	.092	-	.508	.677	-	1.78	.171	-	1.07	.369
Confidence	4.35	.005 *	a < d	.570	.566	-	2.98	.032 *	a < b, c	4.17	.017 *	a < c	1.62	.169
Control	5.52	.001 *	a < b, d c < b, d	.100	.904	-	2.63	.051	-	.801	.450	-	1.14	.335
Continuity	1.05	.368	-	2.98	.053	-	2.60	.053	-	.116	.890	-	1.15	.333
Toughness in Sports Total Points	6.40	.001 *	a < b, d c < d	.819	.442	-	4.29	.006 *	-	2.50	.084	-	1.93	.107

Note. Deff: Meaning Differences; Age = a: 15-19, b: 20-24, c: 25-29, d: 30 years and older; Educational Status = a: primary and secondary education, b: associate/undergraduate c: master/PhD; TL: Turkish lira; Monthly Income Status = a: TL1000-3000, b: TL3001-5000, c: TL5001-7000, d: 7001 and more.

* $p < 0.05$.

In the study, no significant difference was found between volleyball players' monthly income status, year of sport and position in the team, anxiety levels of catching new type of coronavirus, total item score averages and sub-dimension total item score averages ($p > 0.05$). According to the age distribution of the volleyball players, a significant difference was determined between the anxiety of catching the new type of coronavirus and the mean score of the total item ($p < 0.05$). While no statistically significant difference was found between the social anxiety sub-dimension total item score averages of the scale in terms of age variable ($p > 0.05$), a significant difference was found between the individual anxiety sub-dimension total item mean scores ($p < 0.05$). While no statistically significant difference was found between the total item score averages for the anxiety of catching coronavirus and the individual anxiety sub-dimension total item score averages in terms of the educational status variable ($p > 0.05$), a significant difference was found between the social anxiety sub-dimension total item score averages ($p < 0.05$).

In the study, no significant difference was found between the total item mean scores of the mental toughness inventory in sports and the total item score averages of the trust, control,

and continuity sub-dimensions according to the variable of education status of the volleyball players and their position in the team ($p > 0.05$). While no significant difference was found between the toughness sub-dimension total item score averages of the athletes in terms of the age variable ($p > 0.05$), there was a significant difference between the mental toughness inventory total item score averages in sports and the confidence and control sub-dimension total item score averages according to the age variable. determined ($p < 0.05$). While no significant difference was found between the control and continuity sub-dimension total item mean scores of the athletes according to the monthly income status variable ($p > 0.05$), it was determined that there was a significant difference between the total item mean scores of the mental toughness inventory in sports and the total item mean scores of the confidence sub-dimension ($p > 0.05$). While there was no significant difference between the mental toughness inventory total item score averages, continuity and control sub-dimension total item score averages of the athletes according to the sport year variable ($p > 0.05$), there was a significant difference between the confidence sub-dimension total item score averages ($p > 0.05$).

Table 6. Pearson correlation analysis results of the relationship between the scores of the mental toughness inventory in sports and the anxiety of catching new types of coronavirus in athletes

			Scores of the Anxiety Scale of Catching the Coronavirus		
			Individual Anxiety	Social Anxiety	Total Points
Mental Toughness Inventory Scores in Sports	Total Points	r	-.072	-.032	-.067
		p	.297	.643	.335
	Confidence	r	.103	.042	.094
		p	.137	.544	.175
	Control	r	-.296	-.084	-.256
		p	0.001 *	.226	-.256
	Continuity	r	.697	.312	-.005
		p	.209	.209	.942

Note. * $p < 0.001$.

In the research, no statistically significant relationship was found between the anxiety of catching the new type of coronavirus and the mental toughness levels of volleyball players and the sub-dimension of trust control and continuity ($p > 0.05$). No significant relationship was found between the social anxiety sub-dimensions of volleyball players' anxiety about

catching a new type of coronavirus and the total mental toughness, trust, control and continuity sub-dimensions ($p > 0.05$).

In the study, no significant relationship was found between volleyball players' anxiety about catching a new type of coronavirus, individual anxiety sub-dimensions, total mental toughness scores, confidence and continuity sub-dimension ($p > 0.05$), while there was a negative and low-level significant relationship between individual anxiety and control sub-dimension ($p < 0.05$).

4. Discussion

In this study, the relationship between anxiety about catching a new type of coronavirus and mental toughness was evaluated with the participation of 209 professional athletes at the TVF 1st league level.

As a result of the literature review, it was determined that there are many studies on the new type of coronavirus and mental toughness. However, no study has been found to evaluate the relationship between anxiety about catching a new type of coronavirus and mental toughness. In this respect, studies examining the relationship of coronavirus with different psychological states, such as Baykal (2020), Kul et al. (2020), Polatcan and Kaptangil (2021), are similar to this study. Similarly, studies by Batu and Aydın (2020), Gümüşgöl et al. (2020), and Su et al (2021) on coronavirus anxiety in athletes support this study.

As a result of the findings, a significant difference was found between the mental toughness levels of the athletes according to the gender variable. When the results of the analysis between each sub-dimension of mental toughness and the gender variable were examined, a statistically significant difference was found with the confidence sub-dimension, while no significant difference was found in the control and continuity sub-dimensions. In addition, it was determined that the mental toughness and confidence values of male athletes were higher than female athletes. When the literature is examined, it is possible to come across studies supporting the findings of this study (Newland et al., 2013; Findlay & Bowker, 2009; Golby & Sheard, 2004; Koç & Gençay, 2021). On the other hand, İlhan (2020), Sarı et al. (2020), in their study, it was determined that mental toughness did not differ according to the gender variable and the findings do not support the findings of this study. The difference in the findings is thought to be due to the fact that the level of psychology is more effective in women's volleyball compared to men's volleyball.

A statistically significant difference was found between the anxiety of catching the new type of coronavirus according to the age variable of the athletes. When the anxiety of contracting coronavirus according to the age variable was examined in each sub-dimension, a significant difference was found between age and individual anxiety values, but no statistically significant difference was found between social anxiety values. When the pairwise comparison results are examined in order to determine between which groups there is a significant difference as a result of the findings, it is seen that the athletes aged 20-24 have higher anxiety levels compared to the athletes aged 30 and older. When the literature is examined, it is possible to come across studies that support the findings of this study (Batu &

Aydın, 2020; Göksu & Kumcagiz, 2020). On the other hand, Gümüşgül et al. (2020) did not find a significant difference in the new type of coronavirus (COVID-19) anxiety scores according to the age variable of amateur and professional football players in their study, and the findings are not similar to the findings of the study. The reason for the difference as a result of the findings is thought to be due to the fact that volleyball players between the ages of 20-24 were included in the pandemic process in a period where they could gain momentum in their careers.

A statistically significant difference was found in the total mental toughness values of the athletes according to the age variable. When the values of each sub-dimension for mental toughness were examined, no significant difference was found in the continuity sub-dimension in terms of age, while a significant difference was found in the parameters of trust and control. When the pairwise comparison results were examined for the analysis of the significant difference as a result of the findings, it was seen that the athletes between the ages of 15-19 had lower confidence values for the confidence parameter of mental toughness than the athletes aged 30 and older. When the pairwise comparisons for the control sub-dimension are examined, it is seen that the 15-19 age group has lower values than the 20-24 age group and 30 years old and older, the 25-29 age group has lower values than the 20-24 age group and the 25-29 age group has lower values than the 30 years old and older athletes. When the pairwise comparison results for the total mental toughness values are examined, it is seen that the volleyball players in the 15-19 age group and the volleyball players aged 20-24 and older 30 have lower mental toughness levels than the volleyball players in the 25-29 age group compared to the volleyball players aged 30 and older. Crust et al. (2014) reported in their study that mental toughness is directly proportional to age, and the findings are similar to the findings of the study. In contrast, Güvendi et al. (2020). In their study, no significant difference was found between the total mental toughness levels according to the age variable, and the findings do not support the findings of this study. It is thought that the difference resulting from the findings is due to the presence of many challenging factors in the volleyball branch.

According to the variable of education status of the volleyball players, no statistical significance was found in the anxiety values of catching the new type of coronavirus. When coronavirus anxiety was examined for each sub-dimension, there was no significant difference between the individual anxiety levels of the athletes according to their educational status, while a significant difference was found in the social anxiety sub -dimension. Türktemiz et al. (2020), in their study with athletes exercising in the gym, did not find a significant difference between the anxiety of catching the coronavirus and the individual anxiety dimensions according to the educational status variable of the athletes, and the findings are similar to the findings of the study. On the other hand, Budak et al. (2020) did not find a significant difference in anxiety values according to the educational status of the athletes in their study, and the findings do not support the findings of the study. The difference resulting from the findings is thought to be due to the fact that it includes different types of anxiety and different branches.

There was no statistically significant difference between the anxiety of catching the new type of coronavirus and the individual anxiety parameters of the volleyball players according to their mother education level. While there was no significance in the individual anxiety sub-dimension according to the maternal education status of the athletes, a significant difference was found in the social anxiety values. Kaya et al. (2012) and Çağlar et al. (2012) reported in their study that the educational status of the mothers affected the anxiety level of the participants, and the findings are similar to the findings of the study. On the other hand, in the study conducted by Karabulut and Sevde (2019), Lök et al. (2008), no significant relationship was found between the anxiety level of the participants according to their mother's educational status, and the findings do not support the findings of the study. As a result of the findings, it is thought that the difference is due to the fact that this study includes professional volleyball players and the assessment of pandemic anxiety.

A significant difference was found between the total mental toughness levels of the volleyball players according to the monthly income variable. When the mental toughness levels of the athletes were examined by each sub-dimension, there was no significant difference in the control and continuity values according to the monthly income variable, while a statistically significant difference was found with the confidence dimension. In this direction, it is seen that the athletes with an income of TL1000 -3000 have lower total mental toughness and confidence values than those with an income of TL3001-5000 and TL5001-7000. It has been determined that another difference in total mental toughness levels stems from the fact that those with an income of TL1000-3000 have lower values than those with an income of TL7001 and more. Bektaş and Özben (2016) found in their study that psychological toughness scores differ according to the average income level of the family, and the findings show parallelism with the findings of the study. In contrast, Demir and Celebi (2019), Uçar and Kaplan (2020) in their study, no significant difference was found between the mental toughness levels of the athletes according to the variable of monthly income and the findings do not support the findings of the study. The difference as a result of the findings may be due to the fact that volleyball players resort to various restrictions and savings during the COVID-19 process.

No significant difference was found in the total mental toughness scores of the athletes according to the sports year variable. When examined for each sub-dimension of the mental toughness level according to the sports year variable, no significant difference was found in the control and continuity sub-dimensions, while a significant difference was found in the confidence sub-dimension. In their study, Kalkavan et al. (2020) found a significance between the confidence factor of the athletes according to the years of doing sports, but no significance was found in the control sub-dimension. In their study, Ayaş et al. (2020) did not find a significant difference in the continuity sub-dimension according to the sports age variable, and the findings support the findings of the study. On the other hand, in the study conducted by Yarayan et al. (2018) and Akman (2019), significance was determined in the control factor, which is one of the sub-dimensions of mental toughness according to the sports age variable of the athletes, and the findings are not similar to the findings of the study.

The difference in the findings is thought to be due to the awareness of senior volleyball players that the effects of coronavirus cover all sports branches and athletes of all age groups.

A significant difference was found between the mental toughness scores of the volleyball players according to the variable of the number of weekly training sessions. In addition, while there was no statistically significant difference in mental toughness control and continuity dimensions, statistical significance was found with the confidence factor. As a result of the findings, it is seen that those who train 6 days or more a week have higher total mental toughness and confidence values than those who train 5 days a week. In Başer (2019) study with volleyball players, a significant difference was found between the total mental toughness values according to the number of training sessions, and the findings support the findings of the study. On the other hand, Kalkavan et al. (2020) and Yıldız (2017) did not find a significant relationship between all sub-dimensions of mental toughness according to the number of weekly training sessions, and the findings are not similar to the findings of the study. The reason for this difference can be shown as the fact that volleyball is a team sport. As a matter of fact, athletes can achieve team harmony with more training.

When the correlation analysis results according to the anxiety of catching the new type of coronavirus and mental endurance levels of professional volleyball players are examined; no statistically significant relationship was found between total anxiety about catching coronavirus and total mental toughness levels and each sub-dimension. No significant correlation was found between the social anxiety values of the volleyball players and the total mental toughness, trust, control and continuity sub-dimensions. According to the findings, the lack of difference between the scores can be associated with the fact that volleyball is primarily a team game. One of the most distinctive features of sports branches played with team games is that the athletes constantly motivate each other. Athletes are in constant communication both on and off the field. In this direction, it can be said that the athletes have successfully overcome the adaptation to the new process brought about by COVID-19.

While no significant relationship was found between professional volleyball players' anxiety about catching coronavirus, individual anxiety sub-dimension, mental endurance inventory total scores in sports, and confidence and continuity sub-dimensions, a negative and low-level significant relationship was found between individual anxiety and control sub-dimension. As a result of the findings, it can be said that the anxiety of catching a new type of coronavirus by professional volleyball players in the 1st league is not related to their mental toughness levels, while it is seen that there is a negative relationship between their individual anxiety and control levels. In other words, as individual anxiety levels of volleyball players increase, control levels decrease, and as individual anxiety levels decrease, control levels increase. Although the athletes are high-level volleyball players, the fact that their individual concerns are related to their ability to stay cool in the face of unpredictable situations can be explained by the negative effects of the COVID-19 process. Disruptions in the income patterns of the athletes, who are subjected to a difficult process to continue their profession, reveal the problems. While athletes can easily access what they want in the system they are used to, they may now have to resort to restrictive measures. In addition, athletes may be concerned about returning to their sportive performance due to lack of training. Another negative

situation for the athletes is, it is possible to say that there is uncertainty about the end of the process, so much so that the inadequacy of vaccination and quarantine applications at the point of ending the pandemic process can cause anxiety in athletes. In the face of all these uncertainties and problems, although the athletes behave professionally, it should not be forgotten that they have a social life outside of the field and that they are members of a family.

5. Conclusion

It was seen that the anxiety of catching the new type of coronavirus of professional volleyball players is not an important factor for mental toughness containing the ability to overcome despite difficult conditions. Also, it was determined that the level of self-control decreases as the athletes experience the individual anxiety in case of catching coronavirus. Consequently, It can be said that the anxiety of catching the coronavirus does not have a significant impact on the mental resilience of volleyball players. However, it can be concluded that the individual anxiety caused by the coronavirus negatively affects the self-control ability of volleyball players.

6. Recommendation

In the context of this study, the recommendations presented were listed below;

- It is recommended that they contact sports psychologists or trainers.
- Exercising at home and outdoors is thought to be effective in keeping their anxiety levels under control. In this process, prudent approaches and supportive attitudes of coaches and managers are important.
- In addition, it is recommended that future studies be carried out with athletes, trainers or sports managers in other league statuses of volleyball (2nd League, Efeler League, Sultans League, etc.). Moreover different nation or place in sports area athletes with similar one study can be done.
- In today's conditions, it is known that the anxiety of catching a new type of coronavirus has negative effects on every part of the society. In this direction, it is important to conduct a similar study with different institutions and organizations. As a matter of fact, it is thought that studies to determine the relationship between coronavirus anxiety and concepts such as stress and fear will contribute to the literature.
- The mental training may be added to weekly training program of women volleyball players. Thus, the anxiety and stress caused by coronavirus pandemic period in players may be decreased.
- Similar studies containing anxiety and mental stress subjects may be performed on different sports such as football and basketball.

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