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Evaluation of Return to Sport and Anxiety in Injured Team Athletes: A Mixed Methods Study

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ABSTRACT

This study aimed to evaluate the return to sport and anxiety in athletes with anterior cruciate ligament injury. It was conducted using an exploratory sequential mixed design in mixed methods research. In the first phase of the study, 185 athletes (87 women and 98 men) with anterior cruciate ligament injuries were included in the quantitative dimension. In the qualitative dimension, semi-structured interviews were conducted with 18 athletes. In the quantitative and qualitative findings obtained, significant differences were obtained in terms of the return to sport and anxiety states of athletes with an anterior cruciate ligament injury in terms of the branch, league level, duration of return to sport, and age variables. Qualitative findings were used to support the results obtained from quantitative data. At this point, in the qualitative findings, the anxiety experienced by the athletes was very high. They emphasized that the change in the league level did not affect the process of return to sport. It was reported that athletes feared re-injury on return and were concerned that they would not be able to return to their previous performance. In other results related to qualitative findings, the importance of positive social support and physiotherapy support for injured athletes was emphasized. In their opinions about psychological support during the injury process, it was stated that psychological support is important for athletes in this process and that support should be obtained from expert sports psychologists, especially if needed.

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INTRODUCTION

Physical damage is caused by sports injuries, and psychological damage is suffered by injured athletes. Psychologically, sports injuries can seriously affect the athlete and hinder their abilities. The physical aspect of sports injuries is usually dealt with, while the psychological dimension is often left to the background. The psychology of the athlete's return to sport after injury is thought to be important, and at this point, research on the psychology of injury has begun (Brewer, 2009).

This research in the field of injury psychology has been conducted on athletes with different injuries and levels of play. It is seen that the psychological states of athletes during and after the injury process are examined. The theoretical foundations in this field emerged from the stress injury model created by Anderson and Williams. This model defines stress level as an important dimension of sports injuries. The relationship between stress in athletes' lives and injury rate has been discussed (Anderson & Williams, 1988). Stress is an important antecedent to injury and plays an important role in post-injury responses, rehabilitation, and return to sport. Athlete's psychological responses to injury, such as depression, suicidal ideation, anxiety, disordered eating and substance abuse, can trigger mental health problems. Athletes see seeking help in this process as a sign of weakness. Athletes feel that while they are trying to overcome physical problems, they should also be able to overcome psychological barriers. Injury is a process that has psychological as well as physical effects (Putukian, 2016). In the field of injury psychology, research has been conducted on athletes who have suffered many different types of injuries. It is known that anterior cruciate ligament injury is the most common type of injury encountered by athletes. Returning to sport after anterior cruciate ligament injury is a concern for athletes because the healing process is difficult and prolonged. Ardern et al.'s (2014) study reported that the main reasons athletes with anterior cruciate ligament injury could not return to sports were lack of confidence in the knee and fear of re-injury. Psychological readiness for return to sport supports return to sport before anterior cruciate ligament injury. It is important to understand the relationship between psychological factors and return to sport. It is important for the athlete to participate in physical rehabilitation after surgery and to have a good knee so that the athlete can return to sport. It is hypothesized that factors such as the cause, severity, type of injury, age, gender, ethnicity, and socioeconomic status of the athlete indirectly affect the return to sport. It is also emphasized that psychological factors have a significant impact on early recovery after anterior cruciate ligament injury (Clare et al., 2015).

The study aimed to examine in depth the return to sport and anxiety experienced by Turkish athletes during the injury process. The reason for the need for such a study is that there is no research on the anxiety and return to sports of injured Turkish athletes after injury. In this study, the data collection process was primarily carried out with quantitative research methods. Then, qualitative interviews were conducted to examine the research findings in more depth.

In this direction, whether there is a difference in terms of gender, time of return to sport, and level of play in terms of return to sport and anxiety status of injured athletes was examined primarily by quantitative method. Then, the results obtained from quantitative findings were aimed to be supported by qualitative research questions. In the study, the psychological conditions experienced by male and female athletes who are active in sports at different levels and in different branches in the process of returning to sports were examined.

METHODS

Research Design

The research design is an exploratory sequential mixed design, one of the mixed methods research designs. The purpose of using this design in the research is to explain the relationships between quantitative data in-depth with qualitative data. In the literature, the notation of exploratory sequential mixed design is NIC → nit (Creswell & Clark, 2020). The exploratory sequential mixed design is a useful design when qualitative data are needed to explain quantitative significant or surprising results. This study aimed to quantitatively examine the relationship between anxiety and return to sport in athletes with anterior cruciate ligament injury according to various variables. It is to reveal the reasons for the results obtained with the quantitative method in depth with qualitative ways. Therefore, exploratory sequential design was utilized. The research design, study group, data collection tools, collection, and analysis of data are presented separately for the quantitative and qualitative dimensions of the research.

Quantitative Dimension of the Research

Participants

The study population consisted of handball, volleyball, soccer, and basketball players with anterior cruciate ligament injuries living in different cities of Turkey. In the research, simple random method, one of the probability-based sampling methods was used (Creswell, 2020). Within the teams, 186 athletes (n=87 females, n=98 males) who had an anterior cruciate

ligament injury and returned to sports who voluntarily wanted to participate in the study participated in the study.

A total of 186 athletes with anterior cruciate ligament injuries, including 66 from the football branch, 44 from the volleyball branch, 38 from the basketball branch, and 37 from the handball branch, took part in the study. Among these athletes, 33 athletes at the Super League level, 39 at the 1st League level, 56 at the 2nd League level, and 57 at the Amateur League level participated. 53 athletes returned to sport between 1-6 months, 99 athletes who returned between 7-12 months, and 32 athletes who returned over 12 months.

Quantitative Data Collection Tools

The Return to Sport Scale (Webster et al., 2008) and the Sports Injury Anxiety Scale (Rex & Metzler., 2016) were used as data collection tools to evaluate athletes' return to sport and anxiety status with anterior cruciate ligament injury.

Validity and Reliability

Cronbach's Alpha value was found to be .84 in the reliability analysis of the Return to Sport After Anterior Cruciate Ligament Injury Scale. As a result of validity analyses, KMO and Bartlett's values were examined. As a result of Bartlett's test, $p = 0.00$ (<0.05) was found, and it was accepted that there was a relationship between the variables. KMO value was found to be .89

Reliability Analysis of Sports Injury Anxiety Scale Cronbach's Alpha value was found as .76. Confirmatory factor analysis was applied to check the structural validity of the anxiety scale. As a result of Bartlett's test, $P = 0.00$ (<0.05) was found, and it was accepted that there was a relationship between the variables. Kaiser Meyer Olkin (KMO) value was found as .82. It can be stated that both scales are valid and reliable.

Quantitative Data Analysis

The quantitative data collection process started on 11.03.2021 and was completed on 28.02.2022. Approval for the study was obtained from Anadolu University Scientific Research Publication Ethics Committee with Ethics Committee Decision No. 1/6 dated 31.03.2021.

Since competitions and training were suspended due to the Covid-19 pandemic, the scale application and qualitative interviews were conducted online. Confirmation of voluntary participation was obtained from each athlete, and the athletes were informed that they could leave the study at any time. IBM SPSS Statistics 26 package program and JASP 2021 program were used to analyze the research data. Normality analyses were conducted to determine

whether the data collected in the study were suitable for parametric or nonparametric tests. At this stage, skewness, kurtosis, Kolmogrov Smirnov values (for samples of 30 and above) and histograms of the data were examined. Parametric tests (Independent sample t-test, Anova and Manova) were applied to normally distributed data. Posthoc analyses were performed to determine the differences between the groups.

Qualitative Dimension of the Research

The qualitative dimension of this study, which was conducted with **an exploratory sequential mixed method design**, was aimed to reveal the opinions of athletes who had anterior cruciate ligament injuries about their return to sports and anxiety after injury.

Participants

Participant information in the qualitative dimension of the study varied in terms of gender, branch, league levels, psychological support, time of injury, and age of the injury. A total of 18 athletes, five women and 13 men, participated in semi-structured interviews. The study included three volleyballs, three handball, seven soccer, and five basketball branches. Considering the status of receiving psychological support, seven athletes received psychological support in this process.

Qualitative Data Collection Tool and Process

In qualitative data for the research, the semi-structured interview technique developed with evaluations of the data from the quantitative dimension was utilized. In preparing the semi-structured interview questions of the research, the findings that emerged after the analysis of the quantitative data and the literature on the subject were evaluated. The interview questions prepared by the researcher were reviewed with three faculty members who are experts in the field, and the interview questions were finalized. Pilot interviews were conducted with four athletes, reflecting the characteristics of the study group. As a result of the analysis of these interviews, some questions were reorganized. The updated interview questions were again shared with three expert instructors, and the interview form was finalized after the relevant feedback was received. The four pilot athletes interviewed were not included in the analysis. During the qualitative data collection process, appointments were made with the participants, and the interviews were conducted between September 28, 2022, and October 21, 2022, according to the determined interview schedule. Interviews ranged from approximately 17 minutes to a maximum of 55 minutes.

Analyzing Qualitative Data

A content analysis technique was used to analyze the study's qualitative data. Content analysis is defined as categorizing the data into categories by coding for an in-depth understanding of the data obtained by conducting interviews with people who voluntarily participated in the research and creating themes and sub-themes by revealing the relationships between these categories (Patton, 2002; Saldana, 2022). The data were coded by dividing them into the smallest meaningful parts within the scope of content analysis, then categories were created with these codes, and themes were reached by organizing the categories. The third researcher proceeded with the same process. Inter-coder reliability was ensured by comparing the coding, categories, and themes of the two researchers at the last stage. In this study, which utilized an exploratory sequential design, qualitative data were analyzed after quantitative data analysis. Quantitative and qualitative data were associated, evaluated, and interpreted.

RESULTS

In this section, the research findings are presented in accordance with the research problems. For this purpose, the findings obtained from quantitative data are presented first, followed by those obtained from qualitative data. Finally, quantitative and qualitative data were correlated and presented as a whole.

Findings on Quantitative Dimension

The study presented analyses related to the quantitative dimension of return to sport and anxiety. The independent sample t-test, conducted according to the gender variable given in Table 1, determined that there was no significant difference in the return to sport status of female and male athletes with anterior cruciate ligament injury (p >.05).

Table 1
Independent Sample T-Test of Anterior Cruciate Ligament Injury Return to Sport According to Gender Variable

Injury Return to Sport Scale	Gender	n	$\bar{X}$	Ss	t	p
	Female	87	64.32	25.89	-1.802	.073
	Male	98	71.48	27.88	-1.810	

According to the results of the ANOVA test presented in Table 2, p <.05 significant difference was found in the analysis of the Return to Sport Scale in terms of branch, league level, duration (intensity) of return to sport, and age variables. In the post hoc analyses conducted to determine the differences between the groups, when the differences in the branches were examined, differences were found in football-volleyball branches, volleyball-

basketball branches, and volleyball-handball branches. When the differences at the league level were analyzed, differences were found between Super League - amateur league, 1st league- amateur league, 2nd league- 1st league. When the differences were analyzed in terms of the duration of return to sports, differences were found between (1-6) months- 12 months and over and (7-12) months- (1-6) months. When the differences in the age variable were analyzed, a difference was found between 26-30 years of age and 31 years of age.

Table 2
One-Way Analysis of Variance (ANOVA) Test of Anterior Cruciate Ligament Injury Return to Sport According to Branch, League Level, and Return to Sport Time and Age Variables

ACL Scale		n	$\bar{X}$	Ss	F	p
Branch	Football	66	70.44	25.62	5.865	.001*
	Volleyball	44	54.02	29.01		
	Basketball	38	74.55	24.02		
	Handball	37	74.11	25.37		
League Level	Super League	33	74.94	22.13	7.719	.001*
	1st League	40	80.85	23.53		
	2nd League	56	63.23	24.43		
	Amateur League	56	58.70	30.13		
Return to Sport Duration	1-6 month	53	77.66	24.82	4.899	.008*
	7-12 month	100	64.88	27.42		
	12 months +	32	62.41	26.62		
Age	15-20 age	32	70.72	32.65	2.770	.043*
	21-26 age	54	67.96	25.05		
	26-30 age	48	75.17	28.70		
	31 yaş +	31	60.00	22.09		

Note. *: p<0.05

As a result of the independent sample t-test given in Table 3, significant differences (p<.05) were found in the sub-dimensions of suffering anxiety and loss of social support of the Sports Injury Anxiety Scale of female and male athletes who had anterior cruciate ligament injuries.

Table 3
Independent Sample T-Test of Sports Injury Anxiety Status of Athletes with Anterior Cruciate Ligament Injury According to Gender Variable

Anxiety Scale Sub Dimensions	Gender	n	$\bar{X}$	Ss	t	p
Anxiety of losing talent	Female	87	6.67	2.59	.032	.974
	Male	98	6.65	3.07		
Anxiety about being perceived as weak	Female	87	4.78	2.06	-1.567	.119
	Male	98	5.32	2.51		
Anxiety of suffering	Female	87	10.93	2.77	2.159	.032*
	Male	98	10.03	2.88		
Anxiety of disappointment	Female	87	8.13	3.78	.649	.517
	Male	98	7.78	3.56		
Loss of social support	Female	98	6.13	3.06	-3.254	.001*
	Male	87	7.81	3.84		
Anxiety of re-injury	Female	87	13.67	3.62	1.086	.279
	Male	98	13.05	4.03		

Note. *: p<0.05

According to the results of the MANOVA test presented in Table 4, a significant difference (p <0.05) was found in the sub-dimensions of anxiety of losing ability and anxiety of losing social support in terms of the branch variable of sports injury anxiety status of athletes who had anterior cruciate ligament injury. In the post-hoc analyses conducted to determine the differences between the groups, a difference was found in football-handball and volleyball-handball branches in the sub-dimensions of anxiety about losing one's ability. In the sub-dimensions of losing social support, differences were found in football-volleyball, football-basketball, and football-handball branches.

There was no significant difference (p >0.05) in the sub-dimensions of sports injury anxiety in terms of the league-level variable of the sports injury anxiety status of athletes with anterior cruciate ligament injury. A significant difference (p <0.05) was found in the sub-dimensions of pain anxiety, disappointment anxiety, and re-injury anxiety in terms of the time of return to sports in terms of the sports injury anxiety status of athletes with anterior cruciate ligament injury. In the post hoc analyses conducted to determine the differences between the groups, a difference was found between 1-6 months and 7-12 months in the sub-dimensions of anxiety about losing one's ability. There was a difference between 1-6 months and 7-12 months and between 7-12 months and 12 months and above in disappointment anxiety. There was a difference between 1-6 months and 7-12 months in the re-injury anxiety sub-dimension. A significant difference (p <0.05) was found in the sub-dimensions of anxiety about being perceived as weak and losing social support in terms of age variable in the sports injury anxiety status of athletes with anterior cruciate ligament injury. In the post hoc analyses conducted to determine the differences between the groups, a difference was found between the ages 21-26 and 26-30 in the anxiety of being perceived as weak and between the ages 21-26 and 26-30 in the sub-dimension of losing social support.

Table 4
Multiple Analysis of Variance (MANOVA) Test of Sports Injury Anxiety Status of Athletes with Anterior Cruciate Ligament Injury According to Branch, League Level, Return to Sports, and Age Variables

Sport Injury Anxiety Scale Sub-Dimensions		Pillai's Trace	*F*	sd	p
Branch	Anxiety of losing talent	.28	4.482	3	.005*
	Anxiety about being perceived as weak		.105		.957
	Anxiety of suffering		1.366		.255
	Anxiety of disappointment		1782		.152
	Loss of social support		9.101		.001*
	Anxiety of re-injury		.437		.727

Note. *: p <0.05

Table 4 (Continued)

Sport Injury Anxiety Scale Sub-Dimensions		Pillai's Trace	*F*	sd	p
League Level	Anxiety of losing talent	.86	2.173	3	.093
	Anxiety about being perceived as weak		.396		.756
	Anxiety of suffering		1.204		.310
	Anxiety of disappointment		.360		.782
	Loss of social support		.675		.568
	Anxiety of re-injury		.905		.440
Return to Sport Duration	Anxiety of losing talent	.13	2.856	2	.060
	Anxiety about being perceived as weak		1.373		.256
	Anxiety of suffering		3.081		.048*
	Anxiety of disappointment		4.485		.013*
	Loss of social support		2.442		.090
	Anxiety of re-injury		8.689		.001*
Age	Anxiety of losing talent	.15	.660	3	.578
	Anxiety about being perceived as weak		3.708		.013*
	Anxiety of suffering		2.470		.063
	Anxiety of disappointment		2.427		.067
	Loss of social support		3.483		.017*
	Anxiety of re-injury		2.208		.089

Note. *: p <0.05

Findings on Qualitative Dimension

The findings related to the qualitative dimension were formed as a result of semi-structured interviews with injured athletes. As a result of the analysis of the data obtained from these interviews, the findings were presented under seven themes. These themes are;

- Injury-anxiety relationship
- Injury and its relationship with league-level
- Return to sports process and injury
- Social support and injury
- Assessment of psychological support in injury
- Coping techniques and injury relationship
- Benefits of injury

The opinions of the injured athletes about the relationship between injury and anxiety are categorized in terms of category and code in Table 5. According to the results, the anxiety they experienced during the injury process was expressed under two categories: Cognitive anxiety and situational anxiety. In these categories, athletes frequently stated that they experienced anxiety and fear during and after the injury.

Table 5
Injured Athletes' Views on The Relationship Between Injury and Anxiety.

Theme	*Category*	*Code*	*f*	*Opinions*
Relationship between Injury and Anxiety	Cognitive Anxiety	Anxiety and Fear	19	*Participant V3's views; 'I was scared, I was very scared, when I was injured, it didn't seem so difficult, I didn't think it was something that couldn't be solved, but I was very scared because I couldn't use anything in the choice of surgery, I was worried, I was very scared.'*
		Failure to perform at the same level	13	
		Re-injury anxiety	9	
		Failure to return	5	
		Lack of confidence	4	
			50	
	Situational Anxiety	The Covid-19 process	4	*Participant F7's views; 'the thing that affected me psychologically the most was walking with a stick... I felt as if people's eyes were always on me, which made me psychologically very low.' The pandemic was also continuing during the period when I had surgery, I was completely at home because the pandemic was continuing, so the negativities of staying at home were reflected, that is, it had negative effects on my psychology.*
		Walking with a stick	4	
		Physiotherapy process (separate from the team)	4	
		Anxiety about the Future Surgery	4	
			4	
			16	

Three different categories were formed in the opinions of injured athletes about their current level of play and their ability to reach the same level on their return and are presented in Table 6. The categories were concerns about returning to sport after injury, lost opportunities, and positive perspective. It was found that the athletes' concerns about returning to the league level were related to whether they could reach their previous performance. Therefore, athletes preferred to play in the same or a lower league.

Table 6
Injured Athletes' Opinions About the League Level

Theme	**Category**	**Code**	**f**	**Opinions**
Relationship with injury and league level	Concerns about return	Concerns about achieving previous performance	9	*H4's views were as follows: 'You know, will I be able to provide the old performance because when you have a leg, even your running is affected and it is very difficult to recover again, I thought, of course, I thought if it would not be like before...'*
		Preference to stay in the same league or lower league	7	
		Playing in lower leagues due to fear	5	
			21	
	Lost opportunities	Not included in the national team	5	*H5's views; 'At the same time, I am a national athlete, so it was even more difficult for me, will I ever make the national team again?*
		Replacement by another player	2	
		Financial decline	2	
			9	
	Positive outlook	I knew I'd get my old performance back	9	*H6's opinion; 'being aware of these things, such as working continuously in the off-season, created awareness, so I was not worried that I would not be able to return again, because when I returned, I returned well, it was completely gone from my mind.'*
			9	

In Table 7, four different categories were formed about how injured athletes stayed away from sports. These categories were expressed as emotional reactions, physical reactions, return process, and time of injury in returning to sport after injury. It was stated that the athletes did not have much concern about the time of return to sports after the injury and whether the time was long or short was psychologically very long, but that this process was not psychologically very easy. It was emphasized that the time and age they experienced the injury were important.

In Table 8, the importance of support during the injury process was emphasized many times by the athletes. In this sense, it is of great importance that the club, coach, teammates and social environment support the athlete in this process. In this direction, the opinions received from the athletes were defined in three different categories: positive social support, physiotherapy support and its importance and lack of support.

Table 7
Injured Athletes' Opinions About the Period They Stayed Away From Sports

Theme	Category	Code	f	Opinions
Return to sport and injury	Emotional responses	Fear of experiencing the same processes again	8	*V1's views; '...I mean, I was crying in the room every night, my friends were there, they were going away and I was being treated, so I wanted to quit, I didn't want to go through this again and go through the same things again.*
		Staying away from sports	6	
		Crying	4	
		Desire to quit	3	
		Feeling alone	2	
			23	
	Physical responses	Pain	10	*F7's views; '....I could walk as much as possible with crutches, psychologically it was really a very difficult process for me'.*
		Ache	9	
		Trying to be cautious and controlled	6	
		Crutch walking	2	
			27	
	Return process	Time is not important to make healthy returns	12	*Participant B16's views are as follows; '...no, the right time is the right place, be careful, there is no need to rush, I always acted in a motivation. I always acted in anticipation of the right moment. I had to.'*
		Prolonged duration has affected	5	
		The effect of being at the beginning or end of the season	1	
			18	
	When the injury occurred	Injury at an early age made recovery easy.	9	*Participant H4's views; 'I was very young. Doctors were always saying that the growth of your height would be something, it might stop, you know, you are too young, the physical structure of the body is not fully established.'*
		Injury at a young age had a negative effect	6	
		Age has no effect	4	
		Muscles are in the developmental stage and cannot be fully diagnosed	2	
			21	

In Table 9, seven of the 18 injured athletes received psychological support before or during this process and continued during the injury process. Three athletes stated that they received support from a sports psychologist and that this support was beneficial and contributed positively to the athlete's return. Four athletes received psychiatric support; however, it was observed that it was not as effective as a sports psychologist. At this point, it is thought that sports psychologists are seriously important for athletes. It is thought that supporting athletes psychologically and physically will enable them to realize the return to sport in a healthier way.

In the category given in Table 10, it was stated that some coping practices were performed mentally during the recovery process of injured athletes and that these were beneficial.

Table 8
Injured Athletes' Views on the Support They Received During Their Return to Sport

Theme	Category	Code	f	Opinions
Social support and injury	Positive social support	Giving or receiving support from the injured athlete	24	*F7's opinion; 'The support of my coaches who knew me was positive, they treated me as if I had never come back from injury... my family and friends have always supported me in this process...'*
		Family-friends support	15	
		Teammate support	12	
		Coaching support	11	*Participant F9's opinion is as follows: 'If it wasn't for my family, I wouldn't have returned anyway, especially my mother...'*
		Social Support		
		Psychologically relaxed	11	
			73	
	Physiotherapy support	Physiotherapy is very important	14	*Participant F13's views; 'I don't think it is possible to return without a physiotherapist, even if you return, there is a very high chance of re-injury...'*
		Physiotherapist support	10	
			24	
	Lack of support	Negotiate low contracts with the club	6	*V1's views; 'injured... injured and injured... with an eye. For example, when a team called me and told me the price, but you were injured last year, you were wounded, so they looked at me like this is too much. I saw myself inadequate, I mean I saw myself incomplete, you know, this is a bad thing, you get a stigma, you are already injured!.*
		I never got any support from my coach	2	
		Being seen as injured and deficient	2	
			10	

Table 9
Injured Athletes' Views on Psychological Support

Theme	Category	Code	f	Opinions
Assessment of psychological support in injury	Importance of psychological support and reasons for seeking support	Support is important and must be received	14	*Participant V2's views; 'It was a great relief, I mean it was the first time I had experienced something like this, it was my first injury and as I said, I thought it would never happen to me, my return to the field was quicker, thanks to my psychologist, I think I recovered with her help.'*
		Due to Covid-19	1	
		Feeling alone and incomplete	1	
		Because of anxiety	1	
		Frustration and fear	1	
		Anger	1	
			19	
	Psychological support needs	I did not receive support	9	*F8's views; 'I would definitely recommend it... some people may not need it, for example, I didn't need it at all the first time, but it depends on the situation of the person at that moment, if there is a doubt or fear, I think they should definitely take it.'*
		If my club had psychological support, I would take it	5	
		To be taken when needed	4	
			18	
	Practices with psychologist	Imagination	3	*V2's opinion is as follows; '...he supported me a lot with videos showing how the athlete was injured and how he came back. or when an athlete could not do something, he supported me a lot with videos showing that he could do it with more than one thought or willingly'*
		Video monitoring	1	
		Try to think positive	1	
			5	

Table 10
Athletes' Opinions on Coping Techniques for Injury

Theme	Category	Code	f	Opinions
Coping techniques and injury relationship	Coping with injury practices	Talking to yourself	10	*Participant H6's views; 'I would definitely dream about it. You know, I would come back again, I would play at this level again, even higher than this level, and I would always think about the matches I played well while I was sleeping.*
		Video monitoring	10	
		Imagination	10	
		Stopping thinking	4	
		Staying away	2	
		Positive thinking	1	
		Goal setting	2	
			39	

DISCUSSION

In the results related to quantitative and qualitative findings, a significant difference ($p < 0.05$) was found in the sub-dimensions of anxiety of losing ability and anxiety of losing social support in terms of the branch variable in sports injury anxiety states. Qualitative findings: In the feedback received about the psychological state of injured athletes, it was determined that the anxiety experienced by the athletes was very high. They stated that athletes from all branches experience anxiety and fear in this process, especially anxiety about reaching their old performance/losing their ability, anxiety about re-injury, anxiety about not being able to return, and lack of confidence in their knee and themselves when they return (Table 5). It is

seen that the qualitative research findings at this point support the results obtained with the quantitative method. It is seen that similar studies conducted in the literature support these results.

When quantitative studies are examined in the literature, Kabak and Çelik (2022) examined the differences between injury anxiety in terms of the branch variable of sports injury anxiety in terms of team and individual sports branches. They found a significant difference in the sub-dimensions of the sports injury anxiety scale. In their research findings, Saki and Çankaya (2022) found that there was a low level of positive relationship between the sub-dimensions of sports injury anxiety level of soccer players. In the research findings of Ünver et al. (2020), when the sports injury anxiety scores of athletes were compared according to branches, a significant difference was found in the sub-dimensions of the sports injury anxiety scale. Tanyeri (2019) examined the differences between branches and injury anxiety and found a significant difference in the sub-dimension of 'disappointment anxiety'.

In qualitative research findings; Russel et al. (2024) suggest that re-injury anxiety and perceived ability limitations are psychological constructs that differ between those who return to sport and those who do not, and therefore, may be points of intervention to increase the probability of return to sport. Aydoğan et al. (2022) stated that athletes who experienced serious sports injuries felt blamed, impatience, perceiving the injury as serious, fear of not being able to show the same performance, and pressure to return to training. Şahin and Türksoy (2017) examined the opinions of football players with anterior cruciate ligament injury about the feelings, thoughts, and behaviors they experienced during the treatment process; it was revealed that the athletes were generally anxious, impatient, and impetuous about recovery, feared re-injury in this process and performed some movements uncontrollably with this fear. Tomalski (2013) reported that athletes experience fear of re-injury and have concerns about reaching their previous performance. Tjong et al. (2013) stated that athletes who returned to sports experienced fear upon returning; however, as they struggled with this fear, they gained self-confidence, and these fears decreased.

In the results related to quantitative and qualitative findings (Table 2 and Table 4), no significant difference ($p > 0.05$) was found in the sub-dimensions of sports injury anxiety in terms of the league-level variable. In the athletes' opinions about the league-level, it was determined that there were concerns about whether they would be able to reach their former performance again (Table 6). It was stated that the athletes were not concerned about whether there was a change in the league level. Concerns were expressed about missing opportunities with the national team or being replaced by other players. It is seen that qualitative findings

support the quantitative findings. It was found that the change in the league level of the athletes did not differ.

Similar quantitative studies supporting these results in the literature are as follows: Piussi et al. (2022) found that depression symptoms were more severe in professional athletes compared to recreational athletes. There was no difference in anxiety symptoms between professional and amateur athletes. Kayhan et al. (2019) did not find a statistical difference between injury anxiety levels in female athletes according to the analyses conducted according to sports levels (amateur-professional). In this case, it was stated that there was no difference in the injury anxiety of female athletes whether they were doing sports at amateur or professional level.

As for qualitative research, Trainor (2018) stated that athletes have concerns about losing and regaining their abilities. Athletes reported feeling guilty about being away from their team and felt pressure to prove themselves and regain their pre-injury skills when they returned to the sport. Tjong et al. (2013) defined those who could not return to pre-injury sports level as delayers and unconfident. Athletes who returned to their pre-injury activity levels reported being self-motivated, competitive, team-oriented, and self-aware. Evans et al. (2012) identified the replacement of semi-professional and professional team athletes by other players after injury as a stressor.

In the results related to quantitative and qualitative findings, a significant difference ($p<0.05$) was found in the sub-dimensions of suffering, disappointment and re-injury anxiety regarding the duration of return to sports. A significant difference ($p <.05$) was found in terms of branch, league level, and duration (severity) of return to sports (Tables 2 and 4). The athletes stated that they experienced fear of experiencing the same processes again, pain and suffering, and anxiety of re-injury in the process of returning to sports. It was stated that it is important to make a healthy return rather than a long or short period in the process of returning to sports. It was also emphasized that the time of injury is important in return (Table 7). The studies supporting these results in the literature are as follows;

Quantitative studies supporting these results in the literature are as follows: Injury severity is associated with increased stress and anxiety. Considering the psychological status of injury-prone athletes (Quan et al., 2025). Güler (2022) found that there was a relationship between the duration of injury and the sub-dimensions of injury anxiety. It was found that 'anxiety about losing social support' and 'anxiety about re-injury' increased in those with a longer duration of injury. Alshetıwı (2022) found that the level of anxiety in athletes with injury histories differed significantly, and the duration of injury was one of the factors that

increased this level of anxiety. Namlı and Buzdağlı (2020) found a statistically significant difference in the sub-dimensions of 'anxiety of disappointment' and 'anxiety of losing social support' in the duration of staying away from sports after injury. Williams (2019) found a statistically significant difference in the anxiety experienced between athletes less than 3 months away from sports and those with 3 months or more. It has been found that the longer an athlete is unable to participate in their sport, the more stress and anxiety they are likely to experience.

As for qualitative research; Clement et al. (2015) stated that the fear of injury increases in direct proportion to the length of time athletes stay away from sports. Athletes stated that they were concerned about the time to return to sport. Evans et al. (2012) found that the severity of the injury and the loss of time during the injury process affect the demands on the athlete during and after the injury process. Missed opportunities, important competitions, and games at the onset of injury are the most important stressors for athletes. At the same time, the inability to sign a contract due to the injury coinciding with the contract time and the uncertainty about it was defined as the stress factor that affected the athlete the most in this process. According to Podlog and Eklund (2009), athletes' time pressure and constraints to return to specific competitions and competitions affect their goals and expectations during the injury process.

In the qualitative findings, the importance of positive social support and physiotherapy support in this process was emphasized in the opinions received from the athletes about the relationship between social support and injury. It was emphasized that receiving or giving support from an injured person or the support of the social environment and the coach is important in returning (Table 8). The studies supporting these findings in the literature are as follows;

Yao et al. (2025) stated that the athletes did not receive social support from their clubs during the injury process and this situation led to insecurity. The importance of providing psychological support to athletes in this process was emphasized. Trainor (2018) stated that it would benefit athletes to receive social support from people who have had previous injuries and experience. They stated that social support can be meaningful and valuable as it comes from people with similar experiences. Clement et al. (2015) stated that injured athletes seek social support from important people in this process, especially from their coaches. It was emphasized that social support is necessary and important in recovery. Podlog et al. (2015) emphasized that athletes need support to increase their confidence in social support during

the injury process and to eliminate their concerns about the injury and that this support is important.

In the results related to qualitative findings, according to the opinions obtained from the evaluations related to psychological support in injury, it was stated that psychological support is important for athletes in this process and that support should be obtained from expert sports psychologists in case of need (Table 9). It has been stated that in addition to the athlete's physically healthy return, psychologically healthy return can be ensured with such support. The studies supporting these findings in the literature are as follows;

Truong et al. (2025) It has been emphasized that social support strategies and therapeutic applications will positively affect the motivation of athletes after sports-related knee injuries. Tranaeus et al. (2024) rehabilitation process may affect the cognitive, emotional, and behavioral reactions of the athlete. Social support, awareness, acceptance-based practices, and cognitive-behavior-based intervention programs reduce negative reactions and contribute positively to the return process. Afacan and Demir (2022) conducted a study with Turkish professional athletes at the Turkish Super League level. They found that soccer players need psychosocial (mental) support in areas such as concentration, motivation, self-confidence, and fear. According to Brewer (2009), psychological interventions can contribute to the prevention of sports injuries. Stress management and social support interventions were found to be effective in reducing the occurrence of sports injuries. Psychological interventions, biofeedback, relaxation/dreaming, goal setting, self-talk, relaxation, imagery, and goal setting have been applied to treat injured athletes.

In the results related to qualitative findings, according to the opinions about coping during the injury process, it was stated that some coping techniques (self-talk, imagination, watching videos, etc.) that athletes apply to themselves to cope with the injury in this process are beneficial in the recovery process (Table 10). The studies supporting these findings in the literature are as follows;

It is recommended to apply psychological techniques known as motor imagery in this process to reduce the loss of strength and anxiety of re-injury in athletes with acute injury and for the healthy development of the athlete (Mc Neil et al.,2025 & Liu et al.,2024). Estepp (2013) found that athletes most frequently use goal setting, communication, and time management. In Maddison's (2006) study, it was reported that athletes who participated in a stress management intervention lost less time due to injury at the end of the season than athletes who did not participate. It supports the suggestion that a stress management program is effective in preventing further time lost due to injury for athletes with a risky injury profile.

Cassidy (2006) suggests that athletes should be referred to a sports psychology counselor who is knowledgeable in relaxation techniques, imagery techniques and cognitive restructuring. Noh (2005) believes that identifying coping strategies is beneficial for reducing stress.

CONCLUSION

As a result of this research, the psychological conditions experienced by injured athletes after injury were analyzed with quantitative and qualitative methods. In line with the data and opinions received from the athletes, it was emphasized that the injury process negatively affects the athlete both physically and psychologically. With both quantitative and qualitative data, it was determined that athletes at all levels (Super League, 1st League, 2nd League, and amateur League) need psychological support.

At this point, scientific studies have shown that athletes should receive some psychological support as well as physical support in this process. In this process, it should not be ignored that the athlete needs to return to sports healthily. It is recommended that the athlete, physiotherapist, and coach communicate together during the injury process. The physiotherapist has great importance in supporting and motivating the athlete. Another person who is effective and important in this process is the athlete's coach. The more support the coach provides to the athlete in this process, the more it will positively affect their return to sport. The coach should be aware of this issue and, if necessary, seek support from experts in the field of sports psychology. King et al. (2023) The most important role that coaches play during rehabilitation is to provide social support to the injured athlete.

If the athlete needs it, getting support from a sports psychologist in this process is recommended. This has been the opinion of some athletes. I needed psychological support during the injury process, but I could not get it. The athlete must be mentally ready to return to sport. Newton et al. (2024) When the rehabilitation process is carried out with sports psychology specialists, it can make the athlete's rehabilitation process more comfortable. For an athlete who has suffered an anterior cruciate ligament injury, the re-injury anxiety affects the return to sport, so it is important to follow up on these processes for return. Anxiety, fear, or psychological concerns experienced by athletes should be evaluated (Grinberg, 2023).

As a result, psychologically supporting and motivating the injured athlete will help to speed up his/her comeback process. The attitudes and behaviors of the family, friends, social environment, physiotherapist, and coach will ensure that the athlete's return process will be positive.

PRACTICAL IMPLICATIONS

Maddison (2006) stated that stress management interventions are adequate to prevent time loss in injury. Forsdyke (2020) stated that athletes with more social support spend the rehabilitation process with less anxiety and have more self-confidence in returning to sport. Brewer et al, (1991) stated that practices such as relaxation, imagery, self-talk, goal setting are useful in the rehabilitation process. It is argued that psychological skill applications may be beneficial in injury rehabilitation (Scherzer et al., 2001., Brewer, 2009). It is recommended that coaches support this process, a social support network should be provided before the season, and relaxation, imagery, and cognitive studies should be carried out with a sports psychologist (Cassidy, 2006). It is seen that the results of our research support these findings in some respects.

In addition to physical follow-up of athletes after injury, psychological follow-up is recommended. Especially after severe injury, the athletes expressed that they experienced serious anxiety in the process of returning to sports. In this process, the support of the coach and club managers is important. Again, the support of teammates and family is important for athletes' return process. It will take a certain amount of time for the athlete to regain self-confidence, so it should not be forgotten that the athlete needs support in this process. The athlete may feel that he/she is not valued by the club, or he/she is worried about returning to his/her old career. Club managers should make the athlete feel their support. If the club or the athlete has the opportunity, getting support from a sports psychologist in this process is strongly recommended.

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Authors' Contributions

First author carried out the writing of the theoretical part of the article and the data collection process. Second author analyzed the qualitative data and took part in the qualitative discussion. Third author analysis of quantitative data and quantitative discussion are included in the conclusion**.**

Declaration of Conflict Interest

No potential conflict of interest was reported by the author(s).

Ethics Statement

Approval for the study was obtained from Anadolu University Health Sciences Scientific Research Publication Ethics Committee with the Ethics Committee Decision No. 1/6 dated 31.03.2021.

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