Research on the Relationship between Curling Referees' State-Trait Anxiety and Their Decision Making Ability

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Abstract
Curling sport is called "ice chess" due to its level of precision and the complex structure of strategic thinking to win. It is a sport branch that is tactically reminiscent of chess, and technically reminiscent of bowling (Yılmaz, 2018). In this study, it is aimed to research the relationship between curling referees' state and trait anxiety, and their decision-making abilities. In this research, a method for descriptive and correlational survey model will be used to determine the current situation. The population of the study consists of 107 referees who take charge in the activities of the Turkey Curling Federation in 2021, and the sample of the study is 97 referees. In this study, the personal information form and the State-Trait Anxiety Inventory(STAI), developed by Spielberger et al. (1970) and adapted into Turkish by Öner and Le Compte (1985), and the '' Melbourne Decision Making I and II Scales ''developed by Mann et al. (1998) and adapted to Turkish by Deniz (2004) are used. Data analysis is performed in SPSS 22.0 program.
It is observed that the referees participating in the study have moderate state and trait anxiety levels, their self-esteem levels are high, they use careful decision-making style at a high level, and they use avoidant, procrastination, and panic decision-making styles at a low level. It is observed that curling referees' anxiety levels are low, and their decision-making levels are moderate.
Keywords: Curling, State-Trait Anxiety Decision making, Referee

Introduction

Today, Curling, Ice Hockey, and Ice Skating are some of the first sports that come to mind when it is said ice sports. Since Curling does not involve physical contact due to some rules in the game structure among these ice sports, very rare unsporting behaviours can occur during competitions. There are 3 categories in Curling: Chief Referee, Time Chief Referee, and Game Referee. Curling is a team game that is played on an ice track (this track is called a rink) of 42×4.3 meters. The aim of the game is to slide the circular stone made of granite on the ice to stop it in the center of the target (this target resembles a dartboard, and its counterpart in the game is "house"). The distance of the house with a diameter of 3.66 m at both ends of the rink from the hog line, which is the game line, is 6.4 m, and the distance of the houses to each other is 34.7 m. Scores are obtained by throwing stones closer to the center of the house than the opposite team. Curling is called "chess on ice", due to its level of precision and the complexity of strategic thinking to win (https://www.sporkurallari.com/spordallari/curling.html).

Anyone chosen by the parties to settle a deal or a dispute is defined as Referee. If the word Referee is handled in more detail; it can be defined as the individual selected by the sport's governing bodies to decide the points, penalties, wins, and losses (Gökdemir ve Karaküçük 1996).

According to Spielberger, anxiety is an emotional response that consists of a unique combination of anticipation, tension, irritability, worry, and physiological variables (Anshel 1990).

State Anxiety is a state of anxiety, tension, sensitivity, fear, or unhappiness that is felt when there is a situation that threatens the self or interests of the individual, however, disappears when the threat situation disappears. ***Trait Anxiety*** is the individual's being more sensitive and anxious than other people as a personality dimension in all circumstances (Çavuşoğlu, 1993: p.).Defining anxiety as an emotional response to environmental and psychological events, it would be appropriate to say that this phenomenon is universal for all humanity, as well. Anxiety occurs primarily in the individual unconsciously. However, this phenomenon then can be felt consciously. Afterwards, this situation may cause physiological negativity on the individual. Anxiety is placed at the root of abnormal behaviors. This is also an unpleasant feature of it (Ragling 1987).

Decision-making, on the other hand, can be defined as an orientation to relieve the distress experienced when there is more than one way to reach an object that is thought to meet a need. When the situation requiring decision-making will be determined on important issues, it becomes more important to design the results in advance and choose to the most powerful one to reach the target (Kuzgun, 1992). Decision-making is peculiar to people equipped with reason, thought, consciousness, and self-control (Koçel, 2001). The decision can be defined as choosing the most appropriate one among the various modes of action that may be possible in order to achieve a goal according to the present opportunities and conditions (Kuzgun 2000). Hence, a decision can be defined as a judgment made by thinking about an issue or a problem. From this definition, it can also be said that the decision is the result of consideration. Decision-making in its simplest sense means obtaining results or solving some problems (Gibson, Ivancevich, Donnelly 1994, cited in Eskicioğlu 2010). According to Heppner (1978), decision-making includes specific activities such as making decisions, evaluating possibilities, options and monitoring the results. Correct dealing of a situation necessitating a decision requires the correct approach to the solution (Cited in: Yılmaz 2011).Making the right decisions starts with dominating the game to be managed. A good referee should be well-versed in the rules and regulations of the branch in which s/he serves. In other words, s/he should not leave with some room for choice. It should not be forgotten that the only error may put you in difficult situations at the point of making decisions in the game. In the light of this information, it is aimed to examine the relationship between state and trait anxiety and the decision-making skills of active Curling referees. In this way, it is aimed to shed light on the curling referee profession, and the relevant institutions to make evaluations and work towards improvement.

Material and Method

The population of the study consists of 107 referees who take charge in the activities of the Turkey Curling Federation in 2021, and the sample of the study is 97 referees.

In this study, the personal information form and the State-Trait Anxiety Inventory(STAI), developed by Spielberger et al. (1970) and adapted into Turkish by Öner and Le Compte (1985), and the ''Melbourne Decision Making I and II Scales'' developed by Mann et al. as a data collection tool (1998), and adapted to Turkish by Deniz (2004) are used.

Data analysis is performed in SPSS 22.0 program. Multiple Linear Regression analysis is used to research the effects of state and trait anxiety levels on decision-making styles. The Pearson Correlation analysis, on the other hand, is used to investigate the relationship between the scale scores. While analyzing the average and standard deviation values from descriptive statistics regarding the scale scores, frequency analysis is used to determine the percentage distributions of demographic information.

Findings

In the research findings, which examined the relationship between state and trait anxiety and decision-making skills of 97 curling referees from the Curling Federation participating in our study, participant demographic data and percentage distributions are given in Table 1, descriptive statistics tables on decision-making styles and anxiety levels are given in Table 2. In the 3rd Table Pearson's correlation analysis for examining the relationship between state-trait anxiety and decision-

making styles is given, and in Tables 4, 5, 6, 7, and 8th, Multiple linear regression analysis results including anxiety situations are given.

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

Variable	Sub-variable	f	%
Gender	Female	42	43.3
	Male	55	56.7
Age group	18-25 years of age	30	30.9
	26–32 years of age	24	24.7
	33-39 years old	18	18.6
	39+ years of age	25	25.8
Level of Refereeing	Provincial Referee	91	93.8
	National Referee	6	62

	1-3 years	89	91.8
Duration as a Referee	4-6 years	2	2.1
	7-9 years	3	3.1
	9+ years	3	3.1

43.3% of the participants in the study are women, and 56.7% are men. 30.9% of the participants are in the 18-25 age group, 24.7% in the 26-32 age group, 18.6% in the 33-39 age group, 25.8% in the 39+ age group. 94.3% of the respondents are county referees, 5.7% are national referees, 91.8% have been referees for 1-3 years, 2.1% have been referees for 4.6 years, 3% 1 of them have been referees for 7-9 years, 3.1% have been referees for 9+ years.

Table 2 Descriptive Statistics Regarding the Decision-Making Styles and Anxiety Levels of the Referees Participating in the Study

	Subscale	N	X	Ss
State And Trait Anxiety	State Anxiety	97	50.36	4,776
	Trait Anxiety	97	37.15	10,751
Decision-making	Self-Esteem	97	10.38	2,138
	Observant	97	10.00	2,241
	Avoidant	97	3.08	2,486
	Dilatory	97	1.98	2,051
	Panic	97	1.97	2.229

It is observed that the referees participating in the study have moderate state and trait anxiety levels, their self-esteem levels are high, they use observant decision-making style at a high level, and they use avoidant, dilatory, and panic decision-making styles at a low level.

Table 3 Pearson Correlation Analysis Results on the Relationship between State-Trait Anxiety and Decision-Making Styles

		State Anxiety	Trait Anxiety	Self-Esteem	Observant	Avoidant	Dilatory	Panic
State Anxiety	r	1						
	p							
	N							
Trait Anxiety	r	-,357**	1					
	p	.000						
	N	97						
Self-Esteem	r	,406**	-,375**	1				
	p	.000	.000					
	N	97	97					

Observant	r	,131	,323**	,417**	1			
	p	,202	.001	.000				
	N	97	97	97				
Avoidant	r	-,346**	,194	,578**	,026	1		
	p	.001	,057	.000	,799			
	N	97	97	97	97			
Dilatory	r	-,304**	,352**	-,623**	-,163	,664**	1	
	p	.002	.000	.000	,110	.000		
	N	97	97	97	97	97		
Panic	r	-,271**	,334**	-,673**	-.175	,720**	,804**	1
	p	.007	.001	.000	.086	.000	.000	
	N	97	97	97	97	97	97	

**p<0.01

When the table is analyzed a positive and moderately significant relationship is found between the state anxiety levels of the referees and their self-esteem levels (r =.406; p<0.01). There is a negative and moderately significant relationship between state anxiety levels and avoidant decision-making levels (r = -.346; p<0.01). There is a negative and low-level significant relationship between state anxiety levels and dilatory decision-making levels (r = -.304; p<0.01). There is a negative and low-level significant relationship between state anxiety levels and panic decision-making levels (r = -.271; p<0.01). Finally, it is seen that there is no significant relationship between state anxiety levels and observant decision-making levels (r = -.131; p>0.05). A negative and moderately significant correlation is found between the trait anxiety levels of the referees and their self-esteem levels (r = -.375; p<0.01). There is a negative and low-level significant relationship between trait anxiety levels and observant decision-making levels (r = -.323; p<0.01). A positive and moderately significant relationship is found between trait anxiety levels and dilatory decision-making levels (r =.352; p<0.01). There is a positive and low level of significant relationship between trait anxiety levels and panic decision-making levels (r =.334; p<0.01), and there seems to be no significant relationship between trait anxiety levels and avoidant decision-making levels (r =.194; p>0.05)

Table 4 Multiple Linear Regression Analysis Results Related to the Effect of State-Trait Anxiety on Self-Esteem

Variable	B	Std. Error	β	t	p
Stable	5,283	2,545		2,076	.041
State Anxiety	.140	.044	.312	3,214	.002
Trait Anxiety	-.052	.019	-.263	-2,708	.008
r=.475; r²=.209; F(2, 94)=13,682; p=.000					

When the table is analyzed, it is seen that state and trait anxiety have a significant effect of 20.9% on self-esteem (r²=.209; p<0.01), that the effect of state anxiety is positive and significant and that the effect of trait anxiety is negative and significant, and that the effect of state anxiety is higher.

Table 5 Multiple Linear Regression Analysis Results Regarding the Effect of State-Trait Anxiety on Observant Decision-Making

Variable	B	Std. Error	β	t	p
Stable	12,041	2,867		4,200	.000
State Anxiety	.008	.049	.018	.168	.867

Trait Anxiety	-.066	.022	-.317	-3,036	.003
r=.324; r²=.086; F(2, 94)=5,507; p=.000					

When the table is analyzed, it is seen that state and trait anxiety have a significant effect of 8.6% on observant decision making (r²=.086; p<0,01), the effect of state anxiety is positive but not significant (p> 0.05), the effect of trait anxiety is negative and significant (p <0.01), and that the effect of trait anxiety is higher.

Table 6 Multiple Linear Regression Analysis Results Regarding the Effect of State-Trait Anxiety on Avoidant Decision-Making

Variable	B	Std. Error	β	t	p
Stable	10,722	3,144		3,410	.001
State Anxiety	-.165	.054	.318	-3,077	.003
Trait Anxiety	.019	.024	.080	.777	.439
r=.354; r²=.107; F(2, 94)=6,748; p=.002					

When the table is analyzed, it is seen that state and trait anxiety have a significant effect of 10.7% on avoidant decision making (r²=.107; p<0.01), the effect of state anxiety is negative, and that it is significant (p0.01), the effect of trait anxiety is positive, however not significant (p0.05), and the effect of state anxiety is higher.

Table 7 Multiple Linear Regression Analysis Results Regarding the Effect of State-Trait Anxiety on Dilatory Decision-Making

Variable	B	Std. Error	β	t	p
Stable	4,409	2,542		1,735	.086
State Anxiety	-.088	.043	-.204	-2,016	.047
Trait Anxiety	.053	.019	.280	2,765	.007
r=.401; r²=.143; F(2, 94)=8,989; p=.000					

When the table is analyzed, it is seen that the effect of state and trait anxiety on dilatory decision making is 14.3% (r²=.143; p<0.01), the effect of state anxiety is negative and that it is significant (p0.05), the effect of trait anxiety is positive and significant (p0.01), and the effect of trait anxiety is higher.

Table 8 Multiple Linear Regression Analysis Results Regarding the Effect of State-Trait Anxiety on Panic Decision-Making

Variable	B	Std. Error	β	t	p
Stable	3,978	2,798		1,421	.159
State Anxiety	-.081	.048	-.175	-1,703	.092
Trait Anxiety	.056	.021	.272	2,651	.009
r=.372; r²=.120; F(2, 94)=7,535; p=.001					

When the table is analyzed, it is seen that state and trait anxiety have a 12% significant effect on panic decision making (r²=.120; p<0.01), the effect of state anxiety is negative, however not significant. (p> 0.05), the effect of trait anxiety is positive and significant (p <0.01), and the effect of trait anxiety is higher.

Discussion

Common situations of nervousness and tension in sports can raise anxiety, which can have an impact on the decisions of the referees. This study is about the analysis of the continuous anxiety and decision-making skills of the referees who manage the competitions and are exposed to more psychological pressure, and it is considered to contribute to the field.

When the demographic distribution of the referees participating in the study is examined, it is observed that 42 of them are female and 55 are male. There are 30 referees in the 18-25 age group, 24 referees in the 26-32 age group, 18 in the 33-39 age group, and 25 referees in the 29+ age group. 91 provincial referees and 6 national referees participated in the research, and among them, 89 referees have been referees for 1-3 years, 2 referees for 4-6 years, 3 referees for 7-9 years, and lastly 3 referees for 9+ years. It is observed that the referees participating in the study have moderate state and trait anxiety levels, their self-esteem levels are high, they use observant decision-making style at a high level, and they use avoidant, dilatory, and panic decision-making styles at a low level. It is observed that curling referees' anxiety levels are low, and their decision-making levels are moderate.

Considering the results of the Pearson correlation analysis on the relationship between State-Trait Anxiety and Decision-making styles, there is a positive and moderately significant relationship between the state anxiety levels and self-esteem levels of the referees, and a negative and moderately significant relationship between the state anxiety levels and avoidant decision-making levels. There is a negative and low-level significant relationship between state anxiety levels and levels of procrastinating decision making. There is a negative and low-level significant relationship between state anxiety levels and panic decision-making levels. Once again, there is no significant relationship between state anxiety levels and careful decision-making levels.

A negative and moderately significant relationship is found between the trait anxiety levels of the referees and their self-esteem levels. There is a negative and low-level significant relationship between state anxiety levels and levels of observant decision-making. A positive and moderately significant relationship is determined between trait anxiety levels and dilatory decision-making levels. It is observed that there is a positive and low-level significant relationship between trait anxiety levels and panic decision-making levels, and there is no significant relationship between trait anxiety levels and avoidant decision-making levels. It is observed that the state and trait anxiety levels of Curling referees have a positive moderate, negative low level, negative moderate effect on their decision-making abilities.

When the multiple linear regression analysis results regarding the effect of State-Trait Anxiety on Self-esteem are analyzed, it is seen that state and trait anxiety have a significant effect of 20.9% on self-esteem (p<0.01). It is seen that the effect of state anxiety is positive and significant (p<0.01), the effect of trait anxiety is negative and significant (p0,01), and the effect of state anxiety is higher.

When the multiple linear regression analysis regarding the effect of State-Trait Anxiety on Observant Decision-Making is analyzed, it is seen that state and trait anxiety have a significant effect of 8.6% on observant decision-making (r^2=.086; p<0.01). It is seen in the analysis that the effect of state anxiety is positive, however not significant (p>0.05), and the effect of trait anxiety is negative and significant (p<0.01), and the effect of trait anxiety is higher.

When the multiple linear regression analysis regarding the effect of State-Trait Anxiety on Avoidant Decision-making is analyzed, it is seen that state-trait anxiety has a significant effect of 12% on panic decision-making (r^2=.120; p<0.01) It is seen that the effect of state anxiety is negative, however not significant (p>0.05), the effect of trait anxiety is positive and significant (p<0.01), and the effect of trait anxiety is higher.

When the multiple linear regression analysis regarding the effect of State-Trait Anxiety on Deferring Decision-Making is analyzed, it is seen that state-trait anxiety has a significant effect of 14.3% on dilatory decision making (r^2=.143; p<0.01) It is seen in the regression analysis that the effect of state anxiety is negative and significant (p<0.05), the effect of trait anxiety is positive and significant (p0.01), and the effect of trait anxiety is higher.

When the multiple linear regression analysis regarding the effect of State-Trait Anxiety on Panic decision-making is analyzed, it is found in the statistical analysis that state and trait anxiety had a 12% significant effect on panic decision-making (p<0.01). It is seen that the effect of state anxiety is negative, however not significant (p>0.05), the effect of trait anxiety is positive and significant (p<0.01), and the effect of trait anxiety is higher.

When the literature is analyzed, it is seen that the level of anxiety in the decision-making process, which we consider important in Curling referees, is generally effective, depending on the findings obtained from our study, which is the first article that included anxiety and decision-making relationship. It is considered that keeping the level of anxiety in the referees to a minimum will no way affect the decision-making approach. In the light of this information, it is important to increase the competence of the referees and players in the Curling sport called "Ice Chess", where anxiety and decision-making process are very important. The proposal of our study is to recommend seminars and training on anxiety and decision-making.

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