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Effect of different types of Anxiety on Athletes Performance; Planning and Managing Strategy to cope with Athletes' Anxiety

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ABSTRACT

The study determined the possible influence of anxiety on sports performance of elite sportspersons, those who participated in the "31st National Games held in Khyber Pakhtunkhwa's (KP), Pakistan. A sample of (n=126 males= 86; females= 40) aging 18-27 participated in the survey. The pre-competition anxiety scores were measured using the Competitive State Anxiety Inventory (CSAI-2). After the competition, the sports performance scores of the athletes were accordingly measured and then processed through computer software SPSS, version 24. The analyzed data have shown a mild negative association between anxiety and success in sport (r= -0.56, -0.67 & -.66). Additionally, the statistically inferences revealed that different types of anxiety (trait, somatic and cognitive) have produced significant on sports performance of athletes ($p < .05$). As for gender differences, the analyzed inferences indicated significant differences between male and female athletes pertaining to anxiety levels ($p>0.05$). In addition, athletes who took part in team sport recorded higher score on Competitive State Anxiety Inventory (CSAI-2) compared to individual sport-participants ($p<0.05$). These findings help the sport psychologists and coaches to recommend coping strategies appropriate for dealing with anxiety to elite and non-elite athletes

INTRODUCTION

About 600 million people worldwide suffer from depression or anxiety, and there's a risk your co-workers, administrators and leaders or maybe even you may be among them. In many cases mental illness comes with attached stigma. Employees may be hesitant to come forward and tell employers they struggle for fear of putting their jobs in jeopardy. And as a result, they may neglect the care they need. Harvard Medical School work has found that mental health issues can lead to a loss of productivity, which has economic implications for businesses.

As for sport in concerned, psychological factors have long been known to play a role in different performance areas, including sport. Research indicated that personality factors, mood state, and

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cognitive factors can have an impact upon athletic performance (Burton, Gillham & Glenn, 2011). Research has demonstrated that psychological variables such as motivation and goal orientation process have got considerable attention for investigation (Adeyeye, Vipene, & Asak, 2013). Nevertheless, the majority of study and interest in sport's psychological aspects has focused on the anxiety consequences (Frias, 2015). In the field of sport psychology there seems to be a common perception that anxiety has a predictable impact on sport performance (Singh, Prakash, Punia, & Kulandaivelan, 2017), and it is commonly accepted that increased anxiety is a cause of poor performance in many athletes (Zadkhosh, Zandi, & Hemayattalab, 2018).

Two common types of anxiety include state anxiety and trait anxiety. Physiological changes such arousal, apprehension, worry, tension, and fear are the common symptoms of state anxiety (Filaire, Filaire, & Scanff, 2007). Sate anxiety is further classified as somatic anxiety and cognitive anxiety. Somatic anxiety refers to the physical manifestations of anxiety associated with body symptoms such as muscle tension, shortness of breath and rapid heartbeat whereas, cognitive anxiety refers to the feeling of worry and emotional distress an athlete perceives for the upcoming ports events (Ree, French, MacLeod, & Locke, 2008). Trait anxiety is a trait of personality that defines the propensity of feeling nervous in a variety of circumstances (Cox, 2007). Past work has shown that individuals who are extremely anxious experience more situation-specific state anxiety (Horikawa &Yagi, 2010).

Various studies are carried out to determine the possible influence of various kinds of anxiety upon sport performance, and a study showed a negative association between cognitive anxiety and footballer's sport performance (Parnabas, Parnabas, & Parnabas, 2015). Another research on running athletes has shown that they have registered lower somatic anxiety compared to running no-elite athletes. Furthermore, the study findings showed negative association between somatic anxiety and the elite runners' sport results. The study further suggested that low somatic anxiety is perceived as beneficial factors especially in high competitive sport (Parnabas, Parnabas, & Parnabas, 2015). Another research showed that Taekwondo players anxiety levels showed a moderate negative association with their sport performance (Parnabas, Parnabas, & Parnabas, 2015), whereas same results have been found among Hockey (Parnabas, Parnabas, & Parnabas, 2015) and Basketball Players (Parnabas, Parnabas, & Parnabas, 2015).

Recognizing the investigation of psychological variables to contribute to sport performance, it behooves researchers to determine anxiety as one of the important psychological aspect influencing sport performance. In addition, very little research is prevailed in this important aspect of sport among elite

athletes in Pakistan. With this regard, the study determined the possible influence of anxiety on sports performance of elite sportspersons, those who participated in the "31st National Games held in Khyber Pakhtunkhwa's (KP), Pakistan. Furthermore, the study examined that to what extent the gender and type of sport bring change in trait and state anxiety of the participants.

Problem Statement

The successful sport performance is generally attributed to the physical abilities of athletes in the sports arena. However, physical training/abilities are perceived only one factor that leads to the successful competitive performance. In addition to physical abilities, athletes must focus upon the psychological training as psychological training provides tactical and technical training which helps an athlete to achieve the pre-determined goals satisfactorily. Essentially, athletics has a psychological dimension that can affect athlete success regardless of whether physical skill or capacity is present. Thus, the focus of the current research is to examine the impact of anxiety on elite athletes of different genders and the sport format they participated in the '31st National Games held in Khyber Pakhtunkhwa (KP), Pakistan.

Objectives

1. To determine the relationship of Trait anxiety with sports performance of elite athletes.
2. To determine the relationship between predictors (State and cognitive anxiety) and criterion (sports performance) of elite athletes.
3. To analyze the gender differences pertaining to Trait, State, and Cognitive anxiety of elite athletes.
4. To examine the format of sport-wise differences relating to Trait, State, and Cognitive anxiety of elite athletes.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Trait anxiety and sports performance

Achieving high performance in sport needs proper fitness of both physical and psychological aspects of athletes. Therefore, researchers in the area of sport psychology recommends that training might not solely be focused upon the physical aspect of athletes, but due consideration might be given to the psychological aspect too. Anxiety is considered as one of the important psychological factors that can

have an influence upon sport's performance of athletes. Research study revealed a statistically significant effect of trait anxiety on sport performance of athletes based on their sport branches (Sanioglu, Ulker & Tanis, 2017). Another study indicated trait anxiety as one of the risk factors among athletes in the perspective of musculoskeletal injury (Cagle, Overcash, Rowe & Needle, 2017). Another study revealed a significant effect of pre-competition anxiety and self-confidence on sport performance of bouldering climbers (Bazancir, Beydağı & Talu, 2018). Researchers in the field of anxiety and sport found statistically significant effect of trait anxiety on sport success of athletes participated in individual sport (Merino-Fernández, 2019).

H 1 Independent variables (trait anxiety) is negatively correlated with dependent variable (sport performance).

Somatic and Cognitive Anxiety with sports performance

Research in the area of sport psychology are working on the effect of confidence, cognitive and somatic anxiety on sport performance. One study examined a comparative analysis in confidence, cognitive and somatic anxiety on sport performance of futsal players and revealed that theses psychological factors have paramount significance in achieving high rank in sport. Therefore, proper and due consideration might be given to this important aspect of athletes when planning and designing sport training (Habibi, Moghaddam & Soltani, 2017). Research study indicated moderate negative relationship of somatic and cognitive anxiety with sport performance of women football players. Upon these findings, researchers recommend that players with high level of anxiety might be identified and then train them accordingly to prepare for achieving high rank in sport (Singh, Prakash, Punia & Kulandaivelan, 2017).

H 2 Predictors (Somatic and Cognitive Anxiety) are negatively correlated with Criterion variable (sport performance).

Gender and Anxiety

Gender is considered as one of the influential factors affecting anxiety. A study established that female players described greater levels of cognitive anxiety compared to their male athletes' counterparts (Grossbard, Smith, Smoll, & Cumming, 2009). Nicholls colleagues (2010) stated that females significantly described greater level of somatic anxiety and less state of self-confidence in comparison to males. Research tend to indicate females reported higher score of team-oriented scale compared to males. Whereas other study like, Modroño and Guillén (2016) indicated no statistically significant

differences based on the gender of respondents pertaining to various kinds of anxiety including trait, somatic, cognitive, and self-confidence. The above mixed results suggest that the gender differences pertaining to various kinds of anxiety including trait, state, and cognitive remains indistinct.

H 3 Female athletes report higher score on CSAI-2 compared to their male athletes counter-parts

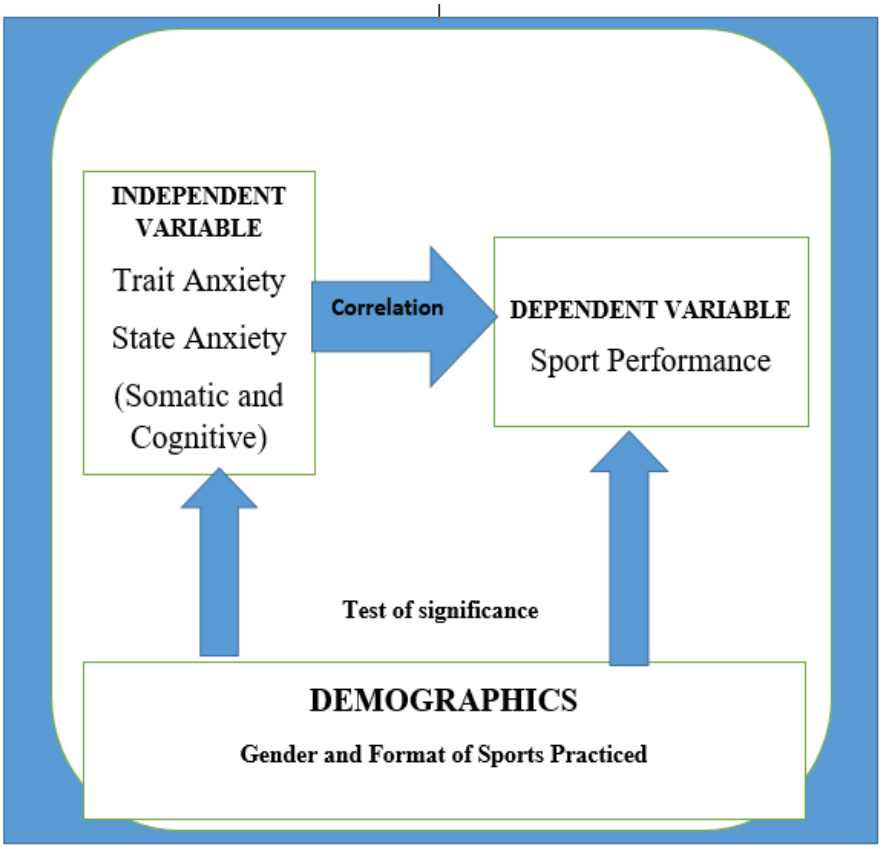
Team vs individual sports with Anxiety

The level of sport (team vs individual sport) can have an influence upon the anxiety level of athletes. In a comparative analysis, elite athletes reported greater self-confidence in traits than non-elite athletes in their counterparts. It was also found that the anxiety may not only be affected by the level of the sporting competitor, it also affects the direction of anxiety (Mellalieu, Neil, & Hanton, 2006). In another similar study, Neil and his colleagues (2006) noted that elite athletes exhibited ore facilitative symptoms of competitive anxiety, higher self-confidence as compare to non-elite-athletes. Study reported that athletes with less somatic anxieties reached a higher overall rank in competition and also displayed greater self-confidence than those with lower ranks (Modroño & Guillen, 2011). The above findings suggest that reduce state of anxiety and an increased level of self-confidence are considered contributing factors for success in sport. Several researches have examined the effect of age on anxiety, and findings of the indicated that athletes at high school level reported more somatic anxiety compared to athletes at college level. In addition, high school athletes reported more somatic anxiety and cognitive anxiety and less self-confidence compared with female college athletes (Whiteley, 2013). Same results have been indicated that age is inversely proportional to cognitive anxiety, and hence, the older athletes reported lesser cognitive anxiety as compare to younger athletes (Modroño & Guillén, 2016). Research proposed that the difference in the level of anxiety occurred due to experience level of athletes i.e., old and young. These findings suggest that both age and experience can have an impact on anxiety (Monasterio, Mei-Dan, Hackney, & Cloninger, 2018). However, potential relationship between age, experience, and sport performance need to be sought out.

H 4 Athletes participated in team sport report higher mean score on CSAI-2 compared to athletes participated in individual sport.

2.2 Conceptual Framework

The following conceptual provide major variables related to the study under investigation along with a description that how these variables are connected together. Their connection/interrelationship are then tested in data analysis.



The aforementioned conceptual structure was constructed from existing literature on the topic at hand. The current model suggests that different kinds of anxiety like trait and state anxiety can affect sport performance. Additionally, demographic characteristics such as gender and format of sport bring change in the level of anxiety among athletes. This model will then be tested with the help of field data from the elite athletes those who participate in 31th National Games, held in Peshawar.

METHODOLOGY

Design used in the Present Research

A research design confabs about ways and means applied to collect and analyze the measures of the variables under investigation (Bordens, & Abbott, 2002). Different research designs i.e., correlational, descriptive, causal-comparative, and experimental are used to attempts to establish cause and effect or relationships among the variables, however; the present study was supported with descriptive research

design (Marczyk & DeMatteo, 2005). Descriptive research design helps the answers to the questions and how they are associated with a research problem (Nassaji, 2015). As the research aimed to find out how sport success is affected by anxiety? In addition, how does the anxiety contribute to a research problem (sport performance)? Therefore, descriptive research design was used to obtain and analyze the selected variables in order to obtain concrete findings.

Population and Sampling Procedure

In this study, athletes who participated in the 31st National Games held in Pakistan's Khyber Pakhtunkhwa (KP) were considered as population. The sample size for this study was (n=126 males= 86; females= 40) aging 18-27 athletes which was obtained through stratified probability random sampling technique. For this purpose, the formula suggested by Yamane (2018) was applied.

n= N/(1+Ne2] = 184/ (1+184*0.052) =126

Measurement

Martens and colleagues (1990) developed the CSAI-2 for measuring the competitive state anxiety and its sub aspects like cognitive anxiety and somatic anxiety. In this regard, Ward and Cox (2004) suggested that CSAI-2 is perceived as widely used instrument for assessing sport-specific measures of state somatic anxiety and cognitive anxiety and self-confidence (Gant and Cox, 2004). As identified in the literature that over the past two decades, the CSAI-2 has been widely used to measure the anxiety and sport (Tsorbatzoudis, Barkoukis, Sideridis, & Grouios, 2002; Craft et al., 2003; Cox, Martens, & Russell, 2003; Martinent, Ferrand, Guillet, & Gautheur, 2010; Lundqvist, Kenttä, & Raglin, 2011). In CSAI-2, athletes are queried to show *"how you feel right now".* The CSAI-2 is a 4-point Likert Scale ranging from "not at all" to "very much so. The subscales of the CSAI-2 consisted 9 items representing the athletes level of intensity pertaining to various anxiety's components and self-confidence.

Procedure

Study has suggested that assessment of CSAI-2 31, fifty-nine (59) minutes prior to sport competition yield appropriate results (Agaoglu, 2016). Therefore, the participants we asked to respond to the CSAI-2 one hour in advance to a sport competition. After the competition, the sports performance scores of the athletes were accordingly measured.

Analysis

The data obtained were analyzed accordingly by using statistical tests. For this purpose, Pearson Correlation and Independent sample t-Test were used to test hypotheses. The decision was taken using the p-value to consider or reject the null hypotheses. The test conducted had a significance level of 0.05.

Testing Of Hypotheses

H 1 Independent variables (trait anxiety) is negatively correlated with dependent variable (sport performance).

Table 1 Table of Correlations (n = 126)

		Trait Anxiety	Sport Performance
Trait Anxiety	Pearson-Correlation		-0.56
	Sig. (2-tailed)		0.002
	N		126
Sport Performance	Pearson-Correlation	-0.56	
	Sig.(2-tailed)	0.002	
	N	126	

Significant at the 0.05 (2-tailed)

To test the above hypothesis, a Correlation test was applied and the results are presented in Table No.1. According to the analyzed data, both the independent variables (trait and state anxiety) are moderate negatively associated with the dependent variable (sport performance) with R- values (-0.56) for trait anxiety. Additionally, the P-values are lesser than the required standard value of 0.05. Hence, the hypothesis is recognized.

H 2 Predictors (Somatic and Cognitive Anxiety) are negatively correlated with Criterion variable (sport performance).

Table 2 Table of Correlations (n = 126)

		Cognitive Anxiety	Somatic Anxiety
Somatic Anxiety	Pearson Correlation	-0.59**	1
	Sig. (2-tailed)	.000	
Sport Performance	Pearson Correlation	-0.67**	-0.66**
	Sig. (2-tailed)	0.002	0.001

Significant at the 0.05 (2-tailed)

Pearson Correlation test was applied to assess the association of predictors with criterion and the results of which are given below in table-2. The analyzed data showed -0.67 and -0.66 correlations respectively for cognitive and somatic anxiety. Moreover, the P-values are lesser than the required standard value of 0.05. Hence, the hypothesis is accepted.

H 3 Female athletes reported higher score on CSAI-2 compared to their male athletes counter-parts

Table 3 Group Measurements on Gender (n = 126)

	Gender	N	mean	Std. dev	Std. Error mean
Trait Anxiety	Females	40	5.0624	.71358	.08325
	Males	86	4.6025	.41870	.03206
Somatic Anxiety	Females	40	4.5407	.61229	.07115
	Males	86	4.2584	.36169	.02714
Cognitive Anxiety	Females	40	5.1619	.79203	.10213
	Males	86	4.7647	.46574	.03781

Table 3a Independent Samples T-Test (n = 126)

		F	Sig.	T	df	Sig. (2-tailed)
Trait Anxiety	EVA	21.479	.000	4.012	152	.000
	EVNA			3.567	82.484	.001
Somatic Anxiety	EVA	22.135	.000	3.632	152	.000
	EVNA			3.247	84.054	.002
Cognitive Anxiety	EVA	15.312	.000	2.905	152	.004
	EVNA			2.600	84.348	.011

Key: EVA: equal variance assumed EVNA: equal variance not assumed

Gender is also emerged as an influential variable in bringing change in the independent variables i.e, trait, somatic, and cognitive anxiety. According to the analyzed data, female have reported higher scores compared to male, which indicate that female are more anxious then male. Therefore, the set hypothesis is hereby substantiated.

H 4 Athletes participated in team sport reported higher mean score on CSAI-2 compared to athletes participated in individual sport.

Table 4 Group Measurements on type of sport (n = 126)

	FOS	N	mean	Std. dev	Std. Error mean
Trait Anxiety	Individual	46	4.7100	.43036	.05037
	Team	80	4.9671	.67207	.07467
Somatic Anxiety	Individual	46	4.3525	.34834	.04077
	Team	80	4.5779	.59158	.06573
Cognitive Anxiety	Individual	46	4.8575	.52676	.06165
	Team	80	5.1086	.69520	.07724

Table 4a Independent Samples T-Test (n = 126)

		F	Sig.	t	df	Sig. (2-tailed)
Trait Anxiety	EVA	13.487	.000	-2.792	152	.006
	EVNA			-2.854	137.688	.005
Somatic Anxiety	EVA	34.568	.000	-2.842	152	.005
	EVNA			-2.915	131.733	.004
Cognitive Anxiety	EVA	3.007	.085	-2.505	152	.013
	EVNA			-2.541	147.764	.012

Key: EVA: equal variance assumed EVNA: equal variance not assumed

The data analyzed showed a big difference in the mean score between the sport participants of the individual and the team. Athletes who took part in team sport recorded higher mean score than those who took part in the individual sport, which mean that team sport-participants perceive more anxiety than individual sport-participants. Based on the SPSS outcomes, therefore; the hypothesis is accepted.

DISCUSSION

This study determined the influence of anxiety upon sport performance of elite athletes who took part in the "31st National Games held in Khyber Pakhtunkhwa's (KP), Pakistan.

The first hypothesis stated that Independent variables (trait anxiety) is negatively correlated with dependent variable (sport performance) is confirmed in the data analysis. The confirmation of hypothesis means that increase in anxiety level decreases the sport performance. These findings are in line with

findings of a study Abenza, Alarcón, Piñar, & Ureña (2009) Who demonstrated a negative association among basketball players between pre-competition trait anxiety and two-point field goals. Judge et al (2016) found a negative correlation between SCAT score and PL score of weightlifters. Same results have been found in the study of Singh etal., (2017) who's findings revealed a moderate negative correlation of anxiety with sport performance of women footballers.

The second hypothesis that Predictors (Somatic and Cognitive Anxiety) are negatively correlated with Criterion variable (sport performance) has also confirmed by the analyzed data (Table No.2). Various studies, for example one studies showed negative relationship between cognitive anxiety and sport performance (Parnabas et al., 2015). Same results have been found on running athletes has demonstrated that they reported lower somatic anxiety compared to no-elite running athletes (Parnabas et al, 2015). Several studies conducted Parnabas et al, (2015) demonstrated negative correlation between somatic anxiety and sport performance of Taekwondo, Hocket, and Basketball players. Such data are of crucial importance for interventions in sport psychology. When sport psychologists try to help athletes control their anxiety about pre-competition, it is suggested that such practitioners emphasize the management and control of factors causing anxiety.

As for as the comparative analysis on gender is concerned, male athletes and female athletes reported differences on anxiety, the score of female athletes on various dimensions of anxiety was found higher. Results of the study tend to corroborate the findings of the previous international studies. In accordance with the findings of (Grossbard et al., 2009; Nicholls, Polman, & Levy, 2010) gender of the athletes can have an influence on their anxiety levels. However, one study demonstrated no statistical significant differences based on the gender related to the levels of anxiety. The above mixed results suggest that the gender differences pertaining to various kinds of anxiety including trait, state, and cognitive need further examination.

As such, this study's last hypothesis aimed to examine the contribution of some form of sport (individual vs team) to anxiety rates, for which the results appear to corroborate previous findings from international studies. In general, format of sport has had a major impact on the athletes' competitive anxiety, in line with the findings of (Samulski, & Lopes, 2008; Fernandes, Nunes, Vasconcelos-Raposo, & Fernandes, 2013;). Thus, type of sport (e.g. individual or team) is highlighted as a variable influencing competitive anxiety levels. The individual athletes in this study reported lower scores of cognitive anxiety than the team sports athletes. The belief that the athlete has a higher degree of control that he / she exercises over

what he / she can do during the competition will explain this result in part. Alternatively, the closeness of the trainer's relationship can have a moderating effect, but that will depend on how the competitive goals are communicated, established and shared among themselves. Good communication between trainer and athlete is central to the proper creation of strategies to deal with the resulting performance concerns / trepidations (Fernandes, Nunes, Raposo, Fernandes, & Brustad, 2013).

CONCLUSION

The study determined the possible influence of anxiety on sports performance of elite sportspersons of Pakistan. This study primarily indicated that participants attributed a significant influence of anxiety upon their sports performance, and demonstrated a moderate negative correlation between anxiety and performance. Secondly, comparative analysis demonstrated that female athletes reported higher mean score on CSAI-2 compared to male athletes. Additionally, it has been concluded that team sport-participants showed higher levels of anxiety then their team sport-participants counterparts. These findings suggest that how athletes of different gender and of different milieus in the country Pakistan perceive different dimensions of anxiety, establishing important allusions for future intervention in the field of exercise and sport psychology. However, this study abstains limitation that the present study was solely focused on self-report of the athletes, and variables such as coach attitudes are not evaluated. Because of the different effects of anxiety styles of gender and the fact that the number of samples is high is not statistically important, therefore more work is needed.

Research Implications

The findings of the present study have several implications;

1. The findings obtained through this study can be perceived an advance especially in the perspective of sport anxiety in Pakistan, by providing information pertaining to the effect of gender and format of sport (individual vs team) on various dimensions of anxiety.
2. Another implication of the present study is that these results helps in organizing and administering the intervention of sport psychology in the homeland country Pakistan.
3. The findings of the present study can also be used among sport psychologists and sport coaches for planning, organizing and recommending coping strategies to deal with competition anxiety among athletes at different levels.

4. These results are also suggests taking into consideration the practical implication for planning intervention of port psychology with athletes of different gender and of different milieus in the country Pakistan.

Recommendations

Based on the results obtained, the following recommendations have been laid down for the purpose of improvement in the psychological aspect of athletes in Pakistan.

1. Findings of the study indicated negative relationship between anxiety and sport, therefore; it is recommended that the sport coaches and trainers use managing maneuvers to pact with anxiety among athletes.
2. It is suggested that the trainer and coaches should add specific cognitive exercise to reduce the cognitive anxiety among athletes.
3. Furthermore, sport trainers and coaches should work upon the anxiety in the early stage of training of athletes.

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