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CORRELATION BETWEEN PSYCHOLOGICAL DETERMINANT OF COMPETITION PERFORMANCE AND PERCEIVED OPTIMAL FITNESS LEVEL IN COVID-19 SURVIVAL ATHLETIC POPULATION.

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ABSTRACT

Introduction
Many athletes suffered from the coronavirus which affected their ability to perform well. Numerous studies have shown that the COVID-19 pandemic poses not only a major medical and economic crisis, but also a mental health challenge.

Objective
This study determines to find out whether there is specific correlation between psychological parameters such as anxiety and mental toughness and optimal fitness level in an individual. In this context, anxiety is defined as a man's innate instincts are fear while mental toughness is defined as the mental state of athletes who persist in difficult sporting circumstances to succeed.

Method
To test the hypothesis that psychological parameters and fitness level are interdependent, an online survey was distributed to people according to inclusion and exclusion criteria. Respondents were asked to fill the questionnaire. Responses [n = 50] were analyzed using Pearson 'r' test.

Result
The results showed small effect stating a negative correlation between psychological determinants and fitness level. In the results, it could be seen that there was significance between perceived optimal fitness and anxiety and their subtypes: somatic, worry concentration. Also, significant correlation between perceived optimal fitness and mental toughness and their subtypes: confidence, constancy, control.

Conclusion
Physical fitness provides an inversely proportional correlation with psychological determinants: anxiety, and mental toughness and their sub-types. It showed strong evidence against concentration, constancy and control. Based on current findings role of development and maintenance of anxiety and mental toughness among athletes needs further investigation.

Keywords: Anxiety, mental toughness, physical fitness, psychological determinants.

INTRODUCTION

Considering the fact COVID-19 become declared a virus through the WHO (World health organization) caused a national lockdown. On March 24, 2020, they announced the first lockdown of 21 days. But they had to extend it further till May 2020 because of an increase in the number of cases. The enforced lockdown resulted in the closure of business

activities, public places, fitness and activity centers. It hindered the lives of the athletes, including routine fitness activities [**Error! Reference source not found.**]. To ensure safety of athletes most sporting events at international, national, and regional level which includes marathons, football, cricket, basketball tournaments have been cancelled or postponed, which has resulted in various psychological issues and solemn fitness and health concerns. This is especially true at the elite level, where it has disrupted training and competition. Numerous studies have shown that the COVID-19 pandemic poses not only a major medical and economic crisis, but also a mental health challenge. Many athletes suffered from the coronavirus and impaired their ability. Reduced capacity may cause poor performance that may increase the risk of injury [**Error! Reference source not found.**].

Physical fitness refers to the ability of your body systems to work together efficiently to allow you to be healthy. It helps athletes in better performing; and constant training will substantially enhance physical fitness [**Error! Reference source not found.**]. Perceived optimal fitness is awareness or consciousness of one's own body's optimum level of cardiovascular, endurance, muscular strength, and flexibility, as well as, the achievement and maintenance of a healthy body weight. However, deceleration of virus and sudden lockdown had a negative impact on player's life.

Sports psychology plays a vital role in controlling the emotions of sportspersons during practice as well as competition. Balanced mind is highly valued within competitive sport. However, limited attention has been paid to the mental processes that support mental toughness. To become an elite athlete, you will need certain physical capabilities that have been well documented. But that in itself is not enough. After suffering from COVID-19, it affected their physical as well as mental health.

The first psychological term to be seen in sports is 'anxiety'. A man's innate instincts are fear [**Error! Reference source not found.**]. It is well known that sport has the potential for high levels of stress and anxiety [**Error! Reference source not found.**]. The body reacts both physically and psychologically to the threat by activating the combat or flight response that will then activate the autonomous nervous system and the adrenal-cortical system (hormones). Anxiety is when fear is disproportionate to the threat and continues long after the threat has diminished. Therefore, anxiety is an emotional state that coincides with physical arousal and is perceived as negative by the person experiencing it (Weinberg & Gould, 2019). There have been many types of research explaining the relationship between anxiety and sports performance. When feeling overwhelming fear, the athlete may be unable to move, talk or act at all. Anxiety also develops as an inability to concentrate before an upcoming event or competition. The athlete is unable to concentrate on the task at hand and therefore cannot give their performance full attention. It is therefore logical for it to be detrimental to an athlete's performance or debilitating. However, this is not always the case, because an athlete sometimes feels it is to improve his or her performance or be a facilitator. Few studies have found that if the performance is ego oriented it is perceived positively but if it is task oriented it is remarked negatively [**Error! Reference source not found.**].

Another common term we see in sports is 'mental toughness'. Also, it has been the subject of extensive research in numerous studies. The term mental toughness describes the mental state of athletes who persist in difficult sporting circumstances to succeed [**Error! Reference source not found.**]. Those who are mentally challenging are meticulous thinkers who respond positively to pressure so that they can remain calm and relaxed [**Error! Reference source not found.**]. There is general consensus that mentally hardened athletes are strong, goal-oriented and assured in their abilities, and have control over regulating their emotions and behaviour [**Error! Reference source not found.**]. So, although the definition of mental toughness varies in different ways, it usually involves an athlete's ability to rebound from failure, cope with pressure, focus, and the ability to keep going in the face of adversity (Weinberg & Gould, 2019). In a study of ten Olympians, they identified mental toughness as one of the best-ranked psychological characteristics that determines performance [**Error! Reference source not found.**]. One study stated that mental toughness was the most important for success in wrestling (rated as 82%) [**Error! Reference source not found.**]. Mental toughness demands a solid approach to your sport's challenges on a consistent basis. You must constantly concentrate, train and develop the habit of mental tenacity.

Furthermore, these two factors are correlated with each other and is most discussed. Many studies have been done on this topic. It has shown that higher levels of mental toughness cause problem in focusing on the game. Other numerous descriptive and intervention studies found a correlation between anxiety and mental toughness as well as subscales of them. Also, there is a study where they reported a negative correlation between them. It depicts that increased mental toughness can reduce competitive anxiety [**Error! Reference source not found.**].

Lack of mental persistence is athletes' main enemy. Lacking mental toughness causes athletes to give up, give in, tank the match, and give less. Negative external or internal psychological factors can lead to mental blocks, causing breaks in focus and preparation, poor performance and, at times, injuries to the athlete [**Error! Reference source not found.**,**Error! Reference source not found.**]. They can produce physical disruptions such as muscle tightening, shaking, and increased perspiration and poor mental health [**Error! Reference source not found.**,**Error! Reference source not found.**]. Poor mental health can also cause eating disorder [**Error! Reference source not found.**], burnout [**Error! Reference source not found.**], and exercise-induced gastrointestinal tract discomfort [**Error! Reference source not found.**]. Moreover, Fear of performance helps the sportsperson to achieve his goals but excess of it will lead to feeling of shortness of breath, sweating, shaking. This will cause to lose their concentration and action become disjointed. The athlete will no longer feels confident [**Error! Reference source not found.**].

Returning to sport following a serious can be a stressful process for athletes. They have concern if they will perform up to pre-illness level. This has increased in the incidence of

injuries [**Error! Reference source not found.**]. After all, there is so much treatment and rehabilitation. Therefore, it is not just physical fitness that is hard but it is also hard to maintain and remain psychologically positive. Fighting the self-doubt and misery can be a real struggle and overwhelming. So, it is vital to improve mental toughness. Also, it can give good and fast outcome probabilities.

Physiotherapist also plays an important in treating anxiety and mental toughness. Some studies have shown that relaxation [**Error! Reference source not found.**], massage [**Error! Reference source not found.**], stretching helps in reducing anxiety. In fact, aerobic training [**Error! Reference source not found.**] can also be used. The approaches are focused on enhancement of self-confidence. Physical activity in right amount has been reported to reduce the symptoms of anxiety and mental toughness.

The purpose of this study is to assessing psychological factor and finding its correlation with the fitness level will help the athletes to improve themselves and reduce further injuries during performance. Therefore, this study aims to establish the connection between psychological state and physical fitness. In this study, we examine whether the use of psychological skills like anxiety and mental toughness are related with physical fitness.

METHODS

Participants: Informed consent was obtained from all participants, as well as from the guardians of all minors, prior to the administration of the questionnaires. A total of 50 players participated in the study.

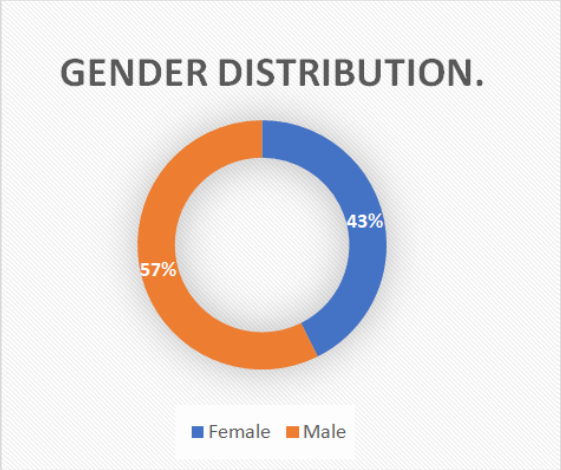
Measures: The Sport Mental Toughness Questionnaire (SMTQ) and Sports Anxiety Scale (SAS) was used to measure mental toughness and anxiety respectively. The SMTQ is a 14 item self-report questionnaire that yields a total mental toughness score, as well as scores on three subscales: confidence; constancy; and control. Whereas SAS is a 12 item self-report questionnaire that yields a anxiety score, as well as scores on three subscales: somatic anxiety, worry, and concentration. Responses to each item are indicated along a four-point Likert-type scale anchored by "not at all true" and "very true". Higher scores are indicative of higher levels of mental toughness and anxiety.

RESULT

DATA PRESENTATION

1. GENDER DISTRIBUTION IN THE STUDY

The diagram shows population percentage of males and females in the study. 29 males and 21 female subjects participated in the study.



2. AGE DISTRIBUTION

The diagram shows various age groups. There are 19 participants of age 19-21 years, 21 from group 22-24 years, 4 from 25-27 years, 6 from 28-30 years. The below table 1 and 2 shows mean and standard deviation of the subscales of the SAS-2 and SMTQ for the athletes.

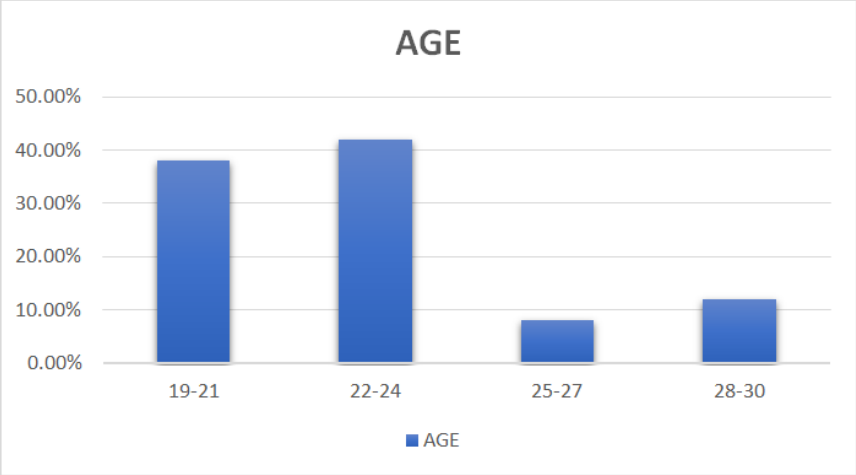


Table 1: Mean and Standard Deviation of sports anxiety scale.

SAS-2	MEAN	STANDARD DEVIATION
SOMATIC ANXIETY	7.74	2.46
WORRY	8.12	3.40
CONCENTARTION	7.6	3.18

Table 2: Mean and Standard Deviation of sports mental toughness scale.

SMTQ	MEAN	STANDARD DEVIATION
CONFIDENCE	14.28	4.06
CONSTANCY	10.32	2.19
CONTROL	9.78	2.34

A Pearson r test was used to check for correlation between physical fitness and psychological determinants. On the subscales of the SAS-2 significance was found in somatic anxiety during competition, correlation coefficient [r] = -0.2851, r squared = 0.08130, p = 0.0447. Worry and concentration were also significant, correlation coefficient [r] = -0.3147, r squared = 0.09901, p = 0.0260 and correlation coefficient [r] = -0.3743, r squared = 0.1401, p = 0.0074.

On the SMTQ scale, significance was found in all three subscales. For confidence, correlation coefficient [r] = -0.2867, r squared = 0.08222, p = 0.0435. For constancy, correlation coefficient [r] = -0.4301, r squared = 0.1850, p = 0.0018. For control, correlation coefficient [r] = -0.4324, r squared = 0.1870, p = 0.0017.

Table 3: Pearson r test values of the subscales of sports anxiety scale.

Title	Somatic anxiety	Worry	Concentration
Coefficient of co-relation (r)	-0.2851	-0.3147	-0.3743
$(r)^2$	0.08130	0.09901	0.1401
p value	0.0447	0.0260	0.0074

Table 4: Pearson r test values of the subscales of sports mental toughness scale.

Title	Confidence	Constancy	Control
Coefficient of co-relation (r)	-0.2867	-0.4301	-0.4324
$(r)^2$	0.08222	0.1850	0.1870
p value	0.0435	0.0018	0.0017

DISCUSSION

Physical fitness refers to the ability of your body systems to work together efficiently to allow you to be healthy. It helps athletes in better performing; and constant training will substantially enhance physical fitness. Perceived optimal fitness is awareness or consciousness of one's own body's optimum level of cardiovascular, endurance, muscular strength, and flexibility, as well as, the achievement and maintenance of a healthy body weight. However, deceleration of virus and sudden lockdown had a negative impact on player's life.

Sports psychology plays a vital role in controlling the emotions of sportspersons during practice as well as competition. Balanced mind is highly valued within competitive sport. However, limited attention has been paid to the mental processes that support mental toughness. Lack of mental persistence is athletes' main enemy. Lacking mental toughness causes athletes to give up, give in, tank the match, and give less. Same goes for anxiety. When feeling

overwhelming fear, the athlete may be unable to move, talk or act at all. Anxiety also develops as an inability to concentrate before an upcoming event or competition. Unable to concentrate on the task at hand, the athlete cannot give their performance full attention.

After suffering from COVID-19, it affected their physical as well as mental health. Assessing psychological factor and finding its correlation with the fitness level will help the athletes to improve themselves and reduce injuries during performance. Therefore, this study aims to establish the connection between psychological state and physical fitness. In this study, we examine whether the use of psychological skills like anxiety and mental toughness are related with physical fitness.

Lacking psychological stability can cause impact on physical fitness. Negative external or internal psychological factors can lead to mental blocks, causing breaks in focus and preparation, poor performance and, at times, injuries to the athlete. They can produce physical disruptions such as muscle tightening, shaking, and increased perspiration.

In a study, conducted on Icelandic youth international soccer players the results showed that the SAS-2 scale, no significance was found. On the SMTQ scale, only significance was found on the subscale "control".

This study was conducted among athletes in and around Satara district. Considering inclusion and exclusion criteria they were requested to participate in the study. Their demographic information was taken. The nature of study was explained to the subjects and those willing to participate were included. 50 athletes were selected. For participation in this research, the subject must be an athlete who can be starter also. The subjects were assessed by using Sports Anxiety Scale and Sports Mental Toughness questionnaire. The questionnaire was formed on google forms. The subject was assessed using perceived fitness level, Sports Anxiety Scale and Sports Mental Toughness Scale.

This study shows that there is connection between physical fitness and psychological determinants. The statistical analysis shows that there is negative correlation between physical fitness and psychological determinants. In the results, from Table 3, it could be seen that there was moderate significance between perceived optimal fitness and somatic anxiety [p = 0.0447], and perceived optimal fitness and worry [p = 0.0260]. Moreover, it showed strong evidence between perceived optimal fitness and concentration [p = 0.0074]. Table 2 represents moderate significant correlation between perceived optimal fitness and confidence [p = 0,0435] while strong significant relationship was seen in perceived optimal fitness and constancy [p = 0.0018], and perceived optimal fitness and control [p = 0.0017].

CONCLUSION

According to articles and current study there is significant and negative correlation of physical fitness with not only global anxiety and mental toughness but also for somatic anxiety, worry, concentration, confidence, constancy, and control. This suggest that as the physical fitness deteriorate, the level of anxiety and mental toughness increases. Therefore, the therapist should not only consider physical health but also mental health in the athletes infected from COVID-19 infection.

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CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to research, authorship and/or publication of this article.

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