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RELATIONSHIP BETWEEN MENTAL TOUGHNESS, STRESS, ANXIETY AND DEPRESSION

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ABSTRACT. Introduction. Mental toughness (MT) is defined by some authors as being fundamental to success in life. In terms of sport at the highest level, is based on the athlete's ability to perform at optimal levels under conditions considered very demanding. MT is considered one of the most important psychological construct underlying sport performance, and is seen as an umbrella concept that encompasses a large number of psychological factors / features connected to each other. **Objective**. The objective of the present study was to investigate the relationship between mental toughness, stress, anxiety and depression among a sample of athletes. **Methods**. The sample in this study consisted of 47 participants. There were 57.4% males and 42.6% females. Their age ranged from 19 to 30 years with M= 21.89 (SD = 2.72). 68.1% of them being performance athletes (from different sports) and 31.9% are students of the faculty of physical education. **Results**. Distribution indicators were evaluated against standard skewness and kurtosis criteria. There was no significant deviation from the standards. Correlation between Mental Toughness Inventory and Dass21 overall score was r= -.53; and between MT and stress, anxiety and depression ranged between r= -.49 and r= -52. Correlation between Dass21 dimension ranged between r=.85 and r=.98. **Conclusions.** The results of the current study highlighted the relationship between mental toughness stress, anxiety and depression. Higher levels of MT have a significant impact in reducing stress, anxiety and depression which can help athletes perform better.

***Key words**: Mental toughness, Dass21, Mental toughness inventory, sport performance, stress, anxiety, depression.*

REZUMAT. *Relația dintre Mental toughness, stres, anxietate și depresie.* **Introducere.** Mental toughness (MT) este definit de autori ca fiind fundamentală pentru a avea succes în viață. În ceea ce privește sportul la nivel înalt, se bazează

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pe capacitatea sportivului de a performa la niveluri optime în condiții considerate foarte solicitante. MT este considerat un important construct psihologic care stă la baza performanţei sportive şi este văzut ca un concept umbrelă care cuprinde un număr mare de caracteristici psihologice conectate între ele. **Obiective.** Obiectivele studiului prezent a fost de a investiga relația dintre MT, stres, anxietate şi depresia în rândul unui eşantion de sportivi. **Metode.** Eşantionul acestui studiu a fost format din 47 de participanți. Dintre aceştia, 57,4% bărbați şi 42,6% femei. Vârsta lor a variat între 19 şi 30 de ani, M=21,89 (SD = 2,72). 68,1% dintre aceştia fiind sportivi de performanţă, iar 31,9% fiind studenți ai facultății de educație fizică. **Rezultate.** Indicatorii de distribuție au fost evaluați în raport cu criteriile standard de asimetrie şi curtoză. Corelația dintre Inventarul mental toughness şi scorul general Dass21 a fost r = -.53; în ceea ce priveşte corelațiile dintre MT şi stres, anxietate şi depresie acestea au variat între r = -.49 şi r = -52. Corelația dintre dimensiunile Dass21 a variat între r = .85 şi r = .98 **Concluzii.** Rezultatele studiului au evidențiat relația dintre MT, stres, anxietatea şi depresie. Nivelurile mai ridicate de MT au un impact semnificativ în reducerea stresului, anxietății şi a depresiei, care pot ajuta sportivii să performeze mai bine.

***Cuvinte cheie**: mental toughness, Dass21, inventarul mental toughness, performanţă sportivă, stres, anxietate, depresie.*

INTRODUCTION

Mental toughness (MT) is defined by some authors as being fundamental to success in life (Wakefield, 2008; Weinberg, 2010). The concept represents "*a personal capacity to produce consistently high levels of subjective (e.g. personal goals or strivings) or objective performance (e.g. sales, race time, GPA) despite everyday challenges and stressors as well as significant adversities*" (Gucciardi et al., 2014, p.3).

In terms of sport at the highest level, is based on the athlete's ability to perform at optimal levels under conditions considered very demanding (Jones, Hanton, & Connaughton, 2007). MT is considered one of the most important psychological construct underlying sport performance, and is seen as an umbrella concept that encompasses a large number of psychological factors / features connected to each other (Gucciardi et al., 2014). At present factors such as self-confidence and the ability to cope and interpret anxiety symptoms are accepted as supporters of sports performance (Jones, Hanton, & Connaughton, 2007; Mellalieu, Hanton, & Fletcher, 2006).

The construct of MT has been approached by different authors using different conceptual frameworks (Gucciardi et al., 2014). In his vision (Loehr, 1986) claimed that mental toughness is acquired rather than inherited. Based on his extensive work applied with elite athletes and coaches suggested that MT includes 7 dimensions (self-confidence; attention control; negative energy; motivation level; attitude control; positive energy; and visual and imagery control).

Clough, Earle, & Sewell (2002) added the construct of confidence to 3C hardiness model (Kobasa, 1979) to reach the final version 4C model of mental toughness (control, commitment, challenge and confidence). After 4C model of MT, (Gucciardi et al., 2014) return to the form of Loehr (1986) in which MT model that includes 7 dimensions MT consists of 7 dimensions and conceptualizes their own 7-dimensional model (self-belief, attention regulation, emotion regulation, success mind-set, context knowledge, buoyancy and optimism). Although MT has been conceptualized over time in various forms, based on different dimension, eg. 7 dimension (Loehr, 1986; Gucciardi et al., 2014), 4 dimension (Clough, Earle, & Sewell, 2002) or 3 dimension (Sheard et al., 2009) several correlation studies have been carried out between this concept and others that have an impact on sport performance.

Relationship between MT and stress, stress appraisal, coping and coping effectiveness during competition, higher levels of MT were associated with more problem focused coping, less emotion-focused and avoidance coping (Kalinin et al., 2019). According to Haghighi & Gerber (2019) stress are associated with depressive symptoms while MT are associated with higher levels of mental health, so symptoms of stress and depression were much more present in students with lower levels of MT than in those with high MT levels. At the same time, depressive symptoms were negatively correlated with MT and life satisfaction.

Aim

Stress and anxiety can prevent athletes from performing at their true potential, while overcoming sports career failures can lead to depression. MT provides significant support for sports performance so it is necessary to establish the relationship between MT, stress, anxiety and depression to determine the extent to which MT can help athletes overcome certain moments and perform at the highest possible levels. Therefore, the aim of this study is to establish the relationship between MT, stress, anxiety and depression.

METHOD

Participants

The sample in this study consisted of 47 participants. There were 57.4% males and 42.6% females. Their age ranged from 19 to 30 years with mean age 21.89 (SD = 2.72). 68.1% of them being performance athletes (from different sports) and 31.9% are students of the faculty of physical education.

Instruments

Mental Toughness Inventory (Gucciardi, Hanton, et al., 2015) self-reported measure was used to operationalize mental toughness. Participants are asked to indicate how true each of the statements (e.g., "I strive for continued success" and "I am able to regulate my focus when performing tasks") is as an indication of how they typically think, feel, and behave as an athlete using a 7-point response scale (ranging from 1 = false, 100% of the time, to 7 = true, 100% of the time). MTI was validated on different languages (English, Chinese and Malay) and different cultures such as: Australian (Hannan et al. 2015), Malaysian (Gucciardi et al., 2016), Chinese (Li et al.,2017), African (Cowden, 2018).

Depression, anxiety, stress scale (DASS-21) (Martin A. M. et at., 1998) is a self-report measure in which participants rate the frequency and severity of experiencing negative emotions over the previous week. Frequency/severity ratings are made on a series of 4-point scales (0 - did not apply to me at all, 3 - applied to me very much, or most of the time).

Procedure

Following informed consent obtained from each participant data collection was carried out in group settings. These were arranged in two series of 20-25 people, and data collection was done in a laboratory with 25 computers. In order to reduce the percentage of missing data, participants were forced to give an answer to each item, unable to proceed if they had missing answers. The general instructions were given before the data was collected. The data are part of a larger study, in the collection of data being more questionnaires. Time for completing the questionnaire package is 30 minutes.

Data analysis

In the first phase, a descriptive analysis was performed (mean, standard deviation, skewness and kurtosis) to test multivariate analysis assumption. In the second phase, the correlations between MT stress, anxiety and depression were calculated to see which of them can influence MT, and to see what kind of influence (negative/positive) they have on MT. This analysis was conducted using IBM SPSS Statistics 22.

RESULTS

The descriptive statistics are presented in Table 1. The mean score for MT was m= 46.43, while mean for Dass21overall score was M=36.64 and mean for Dass21 subscale ranged between 12.09 and 12.30.

Table 1. Descriptive statistics

Variable		M (SD)	Skewness	Kurtosis
Mental toughness		46.43 (6.43)	-.66	.40
Dass21	Stress	12.09 (9.11)	.39	-.95
	Anxiety	12.30 (7.76)	.28	-.73
	Depression	12.26 (8.89)	.28	-.90
Dass21		36.64 (24.76)	.25	-1.11

Distribution indicators were ranged between -1.1 and .4 and were evaluated against standard skewness and kurtosis criteria (Jones, 1969). There was no significant deviation from the above-mentioned standards (Chou & Bentler, 1995).

Table 2. Correlation between MT and Dass21

Pearson' Correlation	MT	Dass21			Dass21
		Stress	Anxiety	Depression	
MT	1				
Stress	-.51**	1			
Anxiety	-.52**	93**	1		
Depression	-.49**	.88**	.85**	1	
Dass21	-.53**	.98**	.96**	.95**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation between Mental Toughness Inventory and Dass21 are presented in Table 2. We found a strong negative relationship between MT and Dass21 overall score was r= -.53, and also between MT and Dass21 subscale (stress, anxiety and depression) correlation value ranged between r= -.49 and r= -52; Regarding correlation between Dass21 dimension ranged between r=.85 and r=.98. A Negative correlation means that if one of variable increases the other decreases. In this case, this indicates that increasing the level of MT can significantly reduce the level of stress, anxiety and depression among athletes.

DISCUSSION

Decreased stress and depressive symptoms are associated with increased MT levels, these correlations can be attributed to the fact that both stress and depression are based on dysfunctional thoughts and patterns of maladaptive behavior, including symptoms of helplessness, hopelessness, withdrawal, avoidance and rigidity (Beck & Alford, 2009; Gerber et al., 2013).

Some authors have explained the relationship between MT and anxiety with the help of other psychological constructs as motivation or coping. Schaefer et al. (2016) investigate the relationship between MT, motivation and anxiety and in his study on golfers shown that the golfers motivation profile higher in intrinsic motivation reported higher levels of MT, furthermore MT mediate a negative association between motivation and competition anxiety. Several studies have highlighted the negative relation between MT and anxiety (Hossein et al. 2016; Algani et al., 2018; Miftakhul, 2018; Kalinin et al. 2019). Intervention studies showed that increased level on MT reduce level of competitive anxiety (Kalinin et al.2019).

Mentally tough athletes tend to be less stressed, anxious or depressed. This result is consistent with another definition of the concept of MT, which characterizes people with a high level of MT as "*having a high level of control, commitment and constancy, even in unfavorable circumstances and tend to interpret problems in terms of challenges*" (Gucciardi et al., 2014).

CONCLUSION

Stress and anxiety are present in the lives of athletes due to the pressures of competitions, failures and training periods. The results of the current study highlighted the relationship between mental toughness stress, anxiety and depression.

Higher levels of MT have a significant impact in reducing stress, anxiety and depression which can help athletes perform better and overcome difficult moments in their careers.

Consequently, any intervention aimed at increasing the level of MT in athletes will also indirectly contribute to reducing the level of stress, anxiety or depression.

Our results provide empirical support for the MT construct in terms of supporting sports performance, but more research is needed to reveal how mental resistance acts on these variables (stress, anxiety, depression).

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