

Mental Toughness and Psychological Well-being in Elite vs Non-elite Collegiate Athletes

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ABSTRACT

Mental toughness (MT) and psychological well-being (PWB) are two of the most important aspects not only in an athlete's sporting career but also in the daily demands of life in order to have optimal functioning and achieve success in sports. This study examined the psychological health and mental toughness of elite and non-elite athletes. The design of this research was a survey, quantitative measures were used. Purposive sampling was employed to collect a sample of 210 athletes from Guru Nanak Dev University, comprising 105 elite athletes and 105 non-elite athletes ranging in age from 18 to 25 years. Psychological general well-being index (PGWBI) and sports mental toughness questionnaire (SMTQ) scales were administered. An independent t-test was used to assess the relevant data and differentiate the results at $p < 0.05$ level. The t-test result showed that there was a significant difference in the level of confidence (sub-dimension of SMTQ) between elite and non-elite athletes. It also indicated a positive correlation between all sub-dimension of scales (PGWBI & SMTQ) in elite athletes, but on the contrary, there was a negative correlation between confidence and control (SMTQ) and no correlation was found in few of the sub-dimensions among non-elite athletes. It can be concluded that the study found a partially significant relationship in psychological well-being and mental toughness between elite and non-elite athletes.

Keywords: *Mental toughness, psychological well-being, SMTQ, PGWBI, elite athlete, non-elite athlete.*

Mental Toughness- A significant portion of human experience is made up of unpleasant life experiences, crises, difficulties, and stressful circumstances, many of which cannot be avoided. Adversity's effects frequently result in impairments in social, educational, and occupational functioning for many people, having a severe impact on both their physical and mental health (Price et al., 2002; Springer et al., 2007; Scott et al., 2011). Given that some people appear to cope better with adversity than others, scholars, investigators, and the general population are increasingly interested in determining the factors and mechanisms that allow some people to keep going when others give up.

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To succeed in performance and be happy in a variety of life domains, mental toughness is a crucial psychological characteristic. In terms of sports, the word "mental toughness" is commonly employed while discussing psychological aspects responsible for winning or losing in a game by sports psychologists, coaches, and athletes (**Gucciardi et al., 2008; Tristan et al., 2010**).

For any athlete to be successful in their chosen sport, they must possess the quality of mental toughness. It is critical for one's future athletic achievement to acquire mental toughness at an early age, preferably throughout adolescence. One cannot succeed in the world of sports without mental toughness. Early mental toughness training offers one an advantage over all of their competitors. Mentally robust athletes can handle the ups and downs of athletics.

While being mentally tough has advantages for an athlete, mental toughness is becoming more and more valuable in recent years. Children and teenagers who have a high level of mental toughness probably do better in competition, enjoy sports more, and are better prepared for the future as a result of developing this skill. Success and being in a healthy mental health situation can be closely correlated with mental toughness.

Psychological Well-Being- When you are psychologically well, you are mentally healthy and have a good outlook on life. There are two major components to psychological well-being. The first refers to how much people experience good emotions and sentiments of happiness. This is sometimes referred to as subjective well-being (**Diener, 2000**), and the second is the feeling that what we are doing with our life has some value and purpose.

Is mental toughness identical to psychological well-being?

While the terms are similar and frequently overlap, there are some distinctions between mental toughness and psychological well-being. The term "mental toughness" refers to how strong one can be while facing adversity, failures and setbacks.

Then what is psychological well-being exactly? It highlights how individuals see and assess their situation. You are mentally well when you are operating and feeling pleasant. However, if your mental health is compromised, you are probably missing out on functioning, a crucial component of psychological well-being.

METHODOLOGY

Participants and Procedure

Sample size was 210 participants (athletes) from Guru Nanak Dev University. The overall sample consisted of athletes ranging in age from 18 to 25 years. G power version 3.1.9.7 software was used to estimate the sample size for the study, power of study: 0.95, level of significance: 0.05, effect size: 0.5. Inclusion criteria was participating players should be between 18-25 years of age, must be an athlete (elite athletes – national level and above, non-elite athletes – below national level), should have a minimum of one year of experience in the sport, must be from Guru Nanak Dev University only. Permission to conduct the survey was taken from respective coaches as well as consent from athletes. After the criteria were met and athletes were selected, information about the research and survey questionnaire were given. A consent form and assessment form were given to the athletes to be filled out. Any questions or doubts related to the questionnaire were cleared by the investigator.

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Measurement Tools

1) **Psychological General Well-Being Index (PGWBI)**- Consist of 22 standardized items, subscales: anxiety, depressed mood, positive well-being, self-control, general health, and vitality, by Harold J. Dupuy, 1960s

2) **Sports Mental Toughness Questionnaire (SMTQ)**- 14-item measure that consists of three subscales: confidence, constancy, and control. The scale is Likert ranging from 1 (not at all true) to 4 (very true). SMTQ has three sub-dimensions: 6 items for confidence, 4 items for constancy, 4 items for control, by Sheard, Golby, & Van Wersch, 2009.

Ethical clearance

The study was approved by the Institutional Ethics Committee (Number 307/HG, dated: 07/04/2022) of Guru Nanak Dev University, Amritsar, Punjab.

Statistical analysis: To investigate between-group differences, an independent t-test was utilized. A $p < 0.05$ threshold was judged significant. For statistical analysis, SPSS statistics version 22 was employed.

Results

Table: 1 – Comparison of mean, SD, STD error mean, T-ratio, P value and results in PGWBI and SMTQ sub-dimensions between elite and non-elite athletes.

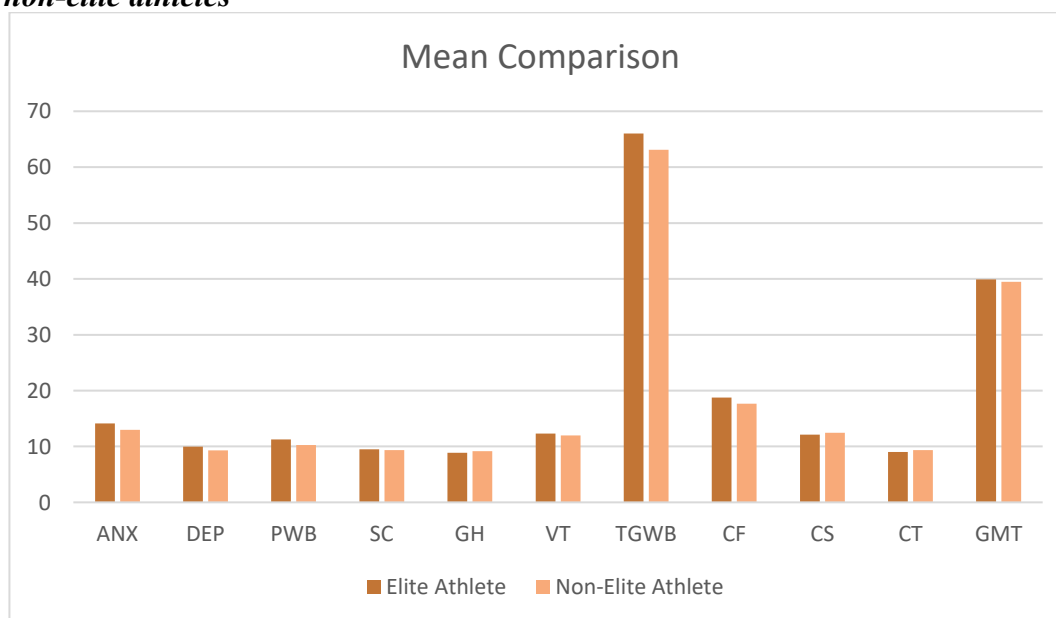
Descriptive Statistics							
	Athlete	Mean	Std. Deviation	Std. Error Mean	T Ratio	P Value	Result
Anxiety	Elite Athlete	14.133	5.4668	0.5335	1.346	.180	Not Significant
	Non-Elite Athlete	13	6.6723	0.6511			
Depressed Mood	Elite Athlete	9.971	3.1545	0.3079	1.279	.202	Not Significant
	Non-Elite Athlete	9.305	4.3104	0.4206			
Positive Well-Being	Elite Athlete	11.248	3.6919	0.3603	1.838	.067	Not Significant
	Non-Elite Athlete	10.257	4.1045	0.4006			
Self-Control	Elite Athlete	9.495	2.5725	0.2511	.305	.760	Not Significant
	Non-Elite Athlete	9.371	3.2618	0.3183			
General Health	Elite Athlete	8.857	3.3092	0.3229	-.665	.507	Not Significant
	Non-Elite Athlete	9.162	3.3286	0.3248			
Vitality	Elite Athlete	12.305	3.742	0.3652	.574	.567	Not Significant

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	Non-Elite Athlete	11.99	4.1821	0.4081			
Global Score	Elite Athlete	66.01	17.648	1.7223	1.110	.268	Not Significant
	Non-Elite Athlete	63.086	20.4107	1.9919			
Confidence	Elite Athlete	18.781	3.5273	0.3442	2.291	.023	Significant
	Non-Elite Athlete	17.657	3.581	0.3495			
Constancy	Elite Athlete	12.143	1.9584	0.1911	-1.113	.267	Not Significant
	Non-Elite Athlete	12.476	2.3619	0.2305			
Control	Elite Athlete	9	2.4962	0.2436	-.946	.345	Not Significant
	Non-Elite Athlete	9.343	2.7485	0.2682			
General Mental Toughness	Elite Athlete	39.924	6.0442	0.5899	.565	.573	Not Significant
	Non-Elite Athlete	39.476	5.4298	0.5299			

Confidence: The results showed a significant difference with p-value = .023 (significance level at 0.05) with a t-ratio of 2.291.

Figure: 1- Mean comparison of sub-dimension of scales (PGWBI, SMTQ) between elite and non-elite athletes



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Table: 2 - Inter- correlation of all the measured variables (Elite athletes)

Pearson Correlation (Elite athletes n=105)														
	n	M	SD	AN X	DE P	PW B	SC	GH	VT	GS	Co nF	Co nS	Co nT	G S
AN X	1 0 5	14.1 33	5.46 68	1										
DEP	1 0 5	9.97 1	3.15 45	.69 4**	1									
PW B	1 0 5	11.2 48	3.69 19	.74 6**	.58 3**	1								
SC	1 0 5	9.49 5	2.57 25	.48 2**	.53 6**	.52 8**	1							
GH	1 0 5	8.85 7	3.30 92	.50 7**	.45 3**	.50 4**	.47 0**	1						
VT	1 0 5	12.3 05	3.74 2	.57 3**	.54 2**	.62 9**	.53 6**	.58 2**	1					
TG WB	1 0 5	66.0 1	17.6 48	.87 7**	.79 4**	.84 9**	.70 3**	.72 3**	.80 5**	1				
CF	1 0 5	18.7 81	3.52 73	.36 7**	.36 9**	.38 4**	.38 6**	.24 1*	.40 9**	.44 8**	1			
CS	1 0 5	12.1 43	1.95 84	.29 1**	.23 3*	.24 9*	.28 9**	.28 1**	.35 6**	.35 4**	.55 0**	1		
CT	1 0 5	9	2.49 62	.48 9**	.33 9**	.35 9**	.22 5*	.27 7**	.35 3**	.44 7**	.23 7*	.23 0*	1	
GM T	1 0 5	39.9 24	6.04 42	.51 0**	.43 1**	.45 3**	.41 2**	.34 6**	.50 0**	.56 1**	.86 0**	.74 0**	.62 6**	1

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

(Anxiety=ANX, Depressed mood=DEP, Positive well-being=PWB, Self-control=SC, General health=GH, Vitality=VT, Global score=TGWB, Confidence=CF, Constancy=CS, Control=CT, General Mental Toughness=GMT)

Table: 3 - Inter- correlation of all the measured variables (Non-elite athletes)

Pearson Correlation (Non-elite athletes n=105)														
	n	M	SD	AN X	DE P	PW B	SC	GH	VT	GS	Co nF	Co nS	Co nT	G S
AN X	1 0 5	13	6.67 23	1										
DEP	1 0 5	9.30 5	4.31 04	.80 3**	1									
PW B	1 0 5	10.2 57	4.10 45	.69 8**	.43 5**	1								
SC	1 0 5	9.37 1	3.26 18	.65 6**	.50 3**	.52 2**	1							
GH	1 0 5	9.16 2	3.32 86	.57 8**	.38 8**	.53 7**	.35 7**	1						

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VT	1 0 5	11.9 9	4.18 21	.46 7**	.31 4**	.60 1**	.39 4**	.46 8**	1					
TG WB	1 0 5	63.0 86	20.4 107	.93 1**	.76 9**	.81 5**	.72 4**	.69 5**	.68 4**	1				
CF	1 0 5	17.6 57	3.58 1	0.1 59	0.1 68	0.1 4	0.1 34	0.1 14	.25 3**	.20 7*	1			
CS	1 0 5	12.4 76	2.36 19	.64 5**	.62 3**	.44 3**	.45 6**	.29 8**	.25 8**	.60 6**	.24 9*	1		
CT	1 0 5	9.34 3	2.74 85	.21 9*	.19 7*	.27 6**	.45 2**	.19 8*	0.1 83	.31 1**	- 0.0 73	0.0 58	1	
GM T	1 0 5	39.4 76	5.42 98	.49 6**	.48 1**	.42 5**	.51 5**	.30 5**	.37 2**	.55 8**	.73 1**	.62 8**	.48 3**	1

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

* . Correlation is significant at the 0.05 level (2-tailed).

(Anxiety=ANX, Depressed mood=DEP, Positive well-being=PWB, Self-control=SC, General health=GH, Vitality=VT, Global score=TGWB, Confidence=CF, Constancy=CS, Control=CT, General Mental Toughness=GMT)

DISCUSSION

Following were the hypothesis:

- Alt Hypothesis – A significant difference will be obtained between elite and non-elite athletes' mental toughness and psychological well-being.
- Null Hypothesis- No significant difference will be obtained between elite and non-elite athletes' mental toughness and psychological well-being.
- The alt hypothesis has been partially accepted. The following are the studies to support the hypothesis.

Independent T-Test between Elite and Non-Elite Athletes

Confidence (SMTQ) was found to be significant between elite and non-elite athletes with a significance of **.023** and **1.12** mean difference. This is consistent with *Mark A et. al (2013)* study which concluded that the highest correlation among subscales was between confidence. In another research conducted by *Mohammad Saber Sotoodeh et. al (2012)*, the results revealed that elite taekwondo players were significantly better than non-elite ones in the self-confidence factor.

Various other studies conducted by *Bush and Salmela (2001)*, *Cr Ciun et al., (2009)*, *Kruger (2010)*, and *Orlick (1992)* stated that self-confidence and commitment are the most important variables of an elite athlete. *Bota (1993)* found that self-confidence, commitment and goal setting are the measures that shows a distinction between elite athletes and non-elite ones.

Sertaç Erciş (2018) discovered that elite students have significantly higher rates of setting goals, confidence, dedication, lower stress reactions, unwinding, concentrating, mental imagery, competition preparation, mental practice, and refocusing than non-elite students.

Adams (1993) found the elite group had a higher score than other non-elite ones in self-confidence skills and motivation.

Correlation of Psychological well-being and Mental toughness in Elite athletes

The findings of this study revealed that there exists a positive significant correlation between psychological well-being and mental toughness. The dimensions of PGWBI state that the higher the score, the better general well-being. This indicates that an athlete's overall psychological state is interconnected to their mental toughness. To support this finding, research by *Bulent et al. (2017)* suggests that psychological well-being was significantly meaningfully and positively related to mental toughness. Specifically, SMT subscales were a moderate to strong predictor of psychological well-being. According to *Clough and Strycharczyk (2012)*, having a high level of mental toughness is linked to being able to handle criticism well, participate in group activities, view competence as a source of motivation rather than its sole cause, use challenges as chances to learn and develop priorities, put forth a lot of effort, and remain composed under pressure in both personal and professional settings. A narrative review by *Daniel F. Gucciardi et al. (2016)*, states that being mentally tough may serve as an indication of good mental health or enable one to attain it. Another study conducted by *John W. Mahoney et al (2014)* revealed that psychological needs and adaptive outcomes were indirectly associated with mental toughness. Psychological needs satisfaction promoted continuous, high effort because of an increased sense of personal control, efficaciousness, and self-value, and this was reflective of mental toughness. It is a clear indicator that psychological well-being and mental toughness facilitate one another.

Correlation of Psychological well-being and Mental toughness in Non-elite athletes

This study revealed a negative correlation between confidence and control (SMTQ). Here control sub-dimension is concerned with the conviction that one is personally influential and capable of achieving desired results, particularly with regard to managing emotions. (*Sheard, 2010*). There is no evident research to support this finding, this result may help in the future development of research in this area.

CONCLUSION

This research concluded that all sub-dimensions of psychological well-being (PGWBI) and mental toughness (SMTQ) positively correlate with one another in elite athletes. It also revealed a negative correlation between confidence and control (SMTQ) sub-dimension in non-elite athletes. Lastly, there was a significant difference between the degree of confidence in elite and non-elite athletes. Elite athletes have more opportunities to frequently compete at a higher level which gives them a better competition experience. According to *Saharuddin Ita et al. (2022)*, top athletes are more self-assured than non-elite athletes. A high level of self-assurance will improve motivation, focus, and reduce the negative consequences of nervousness while competing. (*Najah & Rejeb, 2016; Robbani & Dimiyati, 2019*).

The use of self-report questionnaire as a technique of data collection may limit the reliability of the findings because participants may have biases in their responses. Responses to the survey are subjective, external and internal factors can influence the responses of the same participant at any given day.

Despite that, this study revealed the importance of psychological well-being and mental toughness concerning confidence. Mindfulness, imagery and mental training should be provided to all athletes regardless of elite or non-elite category for performance enhancement and psychological fitness.

While this study attempted to understand the relationship between psychological well-being and mental toughness, it will provide an opportunity for future researchers to explore this

relationship with other psychological variables among different sports players. The findings of this study act as a stepping stone for upcoming researchers who can examine the effects of interventions related to mental toughness on various psychological variables.

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Conflict of Interest

The author(s) declared no conflict of interest.

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