MENTAL TOUGHNESS OF SCHOLAR ATHLETES

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ABSTRACT

The Current study investigated the level of mental toughness of scholar athletes of selected State Universities and Colleges in Region 02, Philippines as a key factor for optimal sports performance, as well as looking at its significant difference when athletes were grouped according to their gender and type of sport (individual/team). Data were collected through the Psychological Performance Inventory (PPI). The collected data were computed and analyzed using descriptive statistics and t-test. A total of 213 scholar athletes took part in this research where among the participants, male respondents were dominative and mostly were team athletes. The findings also revealed that scholar athletes' level of mental toughness to have 'room for improvement' on self-confidence, visual and imagery control, motivation level, positive energy and attitude control while 'needs special attention' on negative energy and attention control. When grouped according to gender, the data uncovered a significant difference on some attributes of mental toughness (self-confidence, visual and imagery control, motivation level and positive energy); conversely, when data were grouped according to type of sport (individual/team), athletes' level of mental toughness were reported to have no significant difference. In conclusion, coaches need to address athletes' low level of mental toughness since it is now being recognized that physical talent is not the only component which leads to athletic success (Gucciardi, Gordon & Dimmock, 2008) but also attributed to athletes' psychological skills (Creasy, 2005; Williams & Krane, 2001). Hence, the inclusion of a Psychological Skills Training (PST) program as an essential part of athletes' regular training is recommended.

Keywords: Mental Toughness; Scholar Athletes, Psychological Performance Inventory, Psychological Skills Training Program

INTRODUCTION:

It is widely believed among competitive sport circles that a successful athlete especially those who become legacies are built through the draft (Sabino, 2009 cited by Gee, Mashall & King, 2010). For some successful athletes, they started as college athletes playing for the college intramurals, triangular meet or the regional meet. Intercollegiate athletics are integral component of a student's college life at many colleges and universities. They provide publicity to their universities and entertainment to the community, and they help develop and instill school pride (Sylwester & Witosky, 2004).

Normally, sports are activities which marked the emphasis on the physical attributes of athletes; however, it is now being acknowledged that physical talent is not the only component that leads to athletic success (Gucciardi, Gordon & Dimmock, 2008). In fact, most coaches and athletes recognized that ninety percent of the sporting success is due to psychological skills (Williams, & Krane, 2001). These psychological skills form the heart of the present study and it sought to find out the level of mental toughness of scholar athletes of selected State Colleges and Universities in Region 02, Philippines, who participated the inter-campus/inter-university sports competition, as well as the regional and national athletic activities of State Colleges and Universities Athletic Association (SCUAA). However, despite the rigorous and regimental physical training, some athletes may perform well at high standards despite massive pressure and others may perform adequately but not to their full capability. The answer may lie on some psychological skills like athletes' mental toughness which can be learned (Loehr, 1986).

Loehr (1986) popularized the term 'mental toughness' to describe the ability to perform ideally and maintain consistency during the heat of competition. It describes athletes' mental strengths and weaknesses relative to the seven (7) subscales of mental toughness, these are: *self-confidence* as the belief that one can perform well and be successful; *negative energy control* means to cope-up with negative emotions such as fear, anger, frustration and temper for achieving success; *attention control* refers being focused to perform well; *visualization and imagery control* relates to create a positive mental images; *motivational level* speak of the athletes energy and willingness to persevere; *positive energy control* denotes that an athlete is energized with fun, joy and satisfaction; and *attitude control* imply the habits of thought and unyielding.

Documented literatures on athlete's mental toughness revealed that when concentration and attention decreases, an athlete's self-confidence also decreases and vice versa (Omar-fauzee et al., 2012). Similarly, negative thinking during competition also contributes to bad performance (Safrussahar & Sofian, 2001). Thus athletes need to possess skills to control these negative energies (Golby & Shread, 2003) through visualization and imagery which is believed to induce relaxation (Horn, 2002). This can help athlete control the feelings of being anxious. Ngaiman and Sofian (2002) further stated that athletes with lower level of motivation prefer to join result-oriented event if the value of the prizes is worth their effort. Williams (2001) further stressed the need to adjust athletes' level of arousal, high self-confidence; positive imagery, more attention and concentration which are the necessary psychological features for optimum performance in athletes.

These studies, therefore, conclude that athletes' mental toughness is an important and imperative component when it comes to peak sports performance (Creasy, 2005). Most coaches and athletes agree that a greater percentage of athletic success is due to athlete's psychological skills (Williams & Krane, 2001; Lefkowits & Mucduff, 2002; Gyambrah, Amponash & Sackey, 2013). The study at hand, then, hypothesized that certain psychological attributes are linked together and influence majorly in the attainment of an excellent sports performance.

STATEMENT OF THE PROBLEM:

The fundamental concern of this study is to find out the level of mental toughness of scholar athletes of selected State Universities and Colleges in Region 02, Philippines. To be specific, it sought to provide answers on the following:

1) What is the profile of the scholar athletes in terms of their: a) gender b) Type of sport (individual/team)

2) What is the level of mental toughness of the scholar athletes?
3) Is there a significant difference exists between scholar athletes' level of mental toughness when grouped according to their gender and type of sport?

METHODOLOGY:

PARTICIPANTS:

This research limited its participants on the main campuses of State Universities and Colleges in Region 02, Philippines namely Isabela State University (ISU); Cagayan State University (CSU); Nueva Vizcaya State University (NVSU) and Quirino State University (QSU). Batanes State College was excluded in the sample for security reasons due to the distance and inadequate transportation to reach the campus.
The participants of the study were two hundred and thirteen (213) athletic scholars who were enrolled during the second semester of the school year 2013-2014. These athletic scholars competed during the inter-campus/inter-university sports athletic competition; as well as during the regional and national sports competitions organized by the State Colleges and Universities Athletic Association (SCUAA) and were awarded the term "athletic scholars" since they were given 25-100% waiver in tuition fee.

DESIGN:

This research is quantitative in nature, both descriptive and inferential, to describe the profile of the participants, as well as the significant difference among the variables.

INSTRUMENT:

The main instrument used was the *Psychological Performance Inventory* ***(PPI)*** by Loehr (1986). Loehr's Psychological Performance Inventory remains the most influential and frequently used mental toughness instrument (Middleton et. al., 2003; Nicholls, Levy, Polman & Backhouse, 2008) in sports psychology. This 42 items-self-report inventory yields an overall mental toughness score, specifically identified by the seven fundamental areas of mental toughness: self-confidence ("I see myself as more of a loser than a winner in competition"); negative energy ("I get angry and frustrated during competition"); attention control ("I become distracted and lose my focus during competition"); visualization and imagery ("Before competition, I picture myself performing perfectly"); motivational level ("I am highly motivated to play my best"); positive energy ("I can keep strong positive emotion flowing during competition") and attitude control ("I am a positive thinker during competition").
Each sub-scale consisted of six items and responses were recorded on a five-point Likert scale anchored by 'almost always' and 'almost never'. Scores placed on each subscale have corresponding descriptive equivalent when summed up, where 6-19 points indicates 'special attention is needed'; 20-25 points indicates that the athletes are advised to improve, as there is much 'room for improvement' and the highest range of point 26-30 shows that athletes have 'excellent mental strength/skills'.
Reliability of the PPI is 0.92 (Loehr, Retert, Brown and Woods, 1992) and was found to be consistent with Cronbach alphas for the seven subscales indicating high reliability (self-confidence-0.69; negative energy-0.42; attention control-0.75; visualization and imagery control-0.82; motivational level-0.70; positive energy-0.71 and attitude control-0.71).

DATA ANALYSIS:

Data were computed and analyzed using the Statistical Package for Social Sciences (SPSS) version 20 employing descriptive statistics such as mean analysis, standard deviation and frequency count to describe the profile of the athletes in terms of their gender; type of sports, as well as their level of mental toughness.
Inferential statistics was also used specifically utilizing t-test for independent samples to determine the difference between scholar athlete's level of mental toughness when grouped according to their gender and type of sport (individual/team sport).

Scoring and interpretation of the test administered was based on standards set by the inventory's manual, however, for use in the SPSS, scores from 6-19 was coded as 1 (needs special attention); 20-25 as 2 (room for improvement) and 26-30 as 3 (excellent skills).

The following weights, ranges for mean interpretation and descriptive equivalent were utilized:

Mental Toughness scores	SPSS assigned value	Mean Ranges	Descriptive Equivalent
26-30	3	2.5-3.0	Excellent Skills
20-25	2	1.5-2.49	Room for Improvement
6-19	1	1.0-1.49	Needs Special Attention

RESULTS:

Table 1: Profile of scholar athletes as to gender and type of sport

Profile	ISU (n=72)		CSU (n=76)		NVSU (n=42)		QSU (n=23)		Total Sample n=213	%
	f	%	f	%	f	%	f	%		
1. Gender										
1.1. Male	42	58.3	46	60.5	26	61.9	15	65.2	129	60.56
1.2. Female	30	41.7	30	39.5	16	38.1	8	34.8	84	39.44
2. Type of Sport										
2.1. Individual	21	29.2	21	27.6	10	23.8	10	43.5	62	29.11
2.2. Team	51	70.8	55	72.4	32	76.2	13	56.5	151	70.89

The table showed that the profile of scholar athletes of selected State-Universities and Colleges in Region 02, Philippines as to which gender and what type of sport they are involved in. There were 72 athletes from Isabela State University (ISU), 42 (58.3%) were male and 30 (41.7%) female; 76 athletes from Cagayan State University (CSU), 46 (60.5%) were male and 30 (39.5%) female; 42 athletes from Nueva Vizcaya State University (NVSU), 26 (61.9%) were male and 16 (38.1) female and 23 athletes from Quirino State University (QSU), 15 (65.2%) male and 8 (34.8%) female.

The table shows the type of sport which they are involved in as whether individual or team sport, from Isabela State University, it were 21 (29.2%) athletes from individual sport and 51 (70.8%) from team sport; from Cagayan State University, there were 21 (27.6%) athletes from individual sport and 55 (72.4%) from team sport; from Nueva Vizcaya State University, there were 10 (23.8%) athletes from individual sport and 32 (76.2%) from team sport and from Quirino State University, there were 10 (43.5%) athletes from individual sport and 13(56.5%) from team sport.

Table 2: Scholar Athletes' Level of Mental Toughness

Attributes of Mental Toughness	Mean	SD	Descriptive Equivalent
a. Self-confidence	1.96	.71	Room for improvement
b. Negative Energy Control	1.44	.58	Needs special attention
c. Attention Control	1.45	.54	Needs special attention
d. Visual and Imagery Control	1.69	.61	Room for improvement
e. Motivation Level	2.01	.70	Room for improvement
f. Positive Energy	2.07	.73	Room for improvement
g. Attitude Control	1.67	.53	Room for improvement

As gleaned from table 2, scholar athletes 'need special attention' on negative energy control and attention control as revealed by the computed mean of 1.44 and 1.45 respectively. However there is a 'room for improvement' with regards to their level of self-confidence; visual and imagery control;

motivation level; positive energy and attitude control with a computed mean of 1.96, 1.69, 2.01, 2.07 and 1.67 respectively. This would mean that the participants have the capacity to be mentally tough; however the coaches still need to address attributes of mental toughness that appeared to be low.

Table 3: Difference between scholar athletes' level of mental toughness when grouped according to gender

Attributes of Mental Toughness	Mean		t-value	p-value
	Male	Female		
a. Self-confidence	23.24	21.15	3.54*	0.001
b. Negative Energy Control	18.91	18.97	-0.14ns	0.887
c. Attention Control	18.96	19.60	-1.58ns	0.115
d. Visual and Imagery Control	21.36	19.01	4.63*	0.000
e. Motivational Level	23.06	21.29	2.96*	0.004
f. Positive energy	23.46	21.50	2.95*	0.004
g. Attitude control	20.48	19.65	1.83 ns	0.069

Legend: * significant ns not significant level of significance: 0.05

As revealed from table 3, the data uncovered a significant difference between scholar athletes' level of mental toughness when grouped according to gender. It specifically revealed four (4) attributes of mental toughness to have significant difference with athletes' gender which are self-confidence, visual and imagery, motivational level and positive energy with t-values of 3.54, 4.63, 2.96 and 2.95 respectively with probability value ranging from 0.000-0.004. Moreover, male athletes showed higher mean scores on five (5) attributes of mental toughness. These are self-confidence, visual and imagery, motivational level, positive energy and attitude control with computed means of 23.24, 21.36, 23.06, 23.46 and 20.48 respectively while female athletes have higher mean scores on negative energy control and attention control with computed means of 18.97 and 19.60 respectively. The findings suggested that gender is an important interpersonal factor in competitive sport (Subrahaman, Singh & Yadav, 2012).

Table 4: Difference between scholar athletes' level of mental toughness when grouped according to type of sport

Attributes of Mental Toughness	Mean		t-value	p-value
	Individual	Team		
a. Self-confidence	22.25	22.49	-0.39ns	0.069
b. Negative Energy Control	18.06	19.49	-2.54*	0.012
c. Attention Control	18.66	19.45	-1.84ns	0.068
d. Visual and Imagery Control	19.90	20.64	1.28ns	0.202
e. Motivational Level	22.69	22.23	0.75ns	0.457
f. Positive energy	23.29	22.44	1.39ns	0.195
g. Attitude control	20.59	19.98	1.33ns	0.187

Legend: * significant ns not significant level of significance: 0.05

As gleaned from table 4, scholar athletes' level of mental toughness have no significant difference when grouped according to their type of sport (individual/team sport) with reference to self-confidence, attention control, visual and imagery control, motivational level, positive energy and attitude control with t-values of -0.39, -1.84, 1.28, 0.75, 1.39 and 1.33 respectively and probability values ranging from 0.068-0.457. The result implies that scholar athletes' show similar degree of mental toughness regardless of their type of sport.

Moreover, the results revealed that majority of the attributes of mental toughness in team athletes when compared to individual athletes score is higher in self-confidence, negative energy, attention control

and visual and imagery control which is evident through the computed mean values 22.49; 19.49; 19.45 and 20.64 respectively while individual athletes scored higher on attitude control, motivational level and positive energy with computed means of 20.59; 22.69 and 23.29.

DISCUSSION:

Profile of the Scholar Athletes as to Gender and Type of Sport: The participants of the study were dominated by male scholar athletes (129 or 60.56%) while there were only 89 (39.44%) female scholar athletes. Further, majority (151 or 70.89%) of scholar athletes were from team sports while only 62 (29.11%) scholar athletes were from individual sports.

Scholar Athletes' Level of Mental Toughness: The low level of *negative energy control* and *attention control* reported by the scholar athletes inferred that they possess low level of coping with negative emotions such as fear, anger, frustration and temper which may contribute to athletes' stress and pressure. With low negative energy control, Amponash, Gyambrah & Sackey (2013) stated that the athletes were not being able to control the flow and impact of negative energy under sport situations. Bull *et al.,* (2005) stated that when an athlete cannot control these negative energies, it becomes a problem which may affect his or her performance. Further, the observed low level of athletes' *attention control* infers that they are not able to maintain effective focus or concentration. The ability to remain focused during a competition is, a skill that was identified by coaches as the most important mental skill needed in sport (Gould, Medbery, Madrijan & Lauer, 1999 cited by Gyambrah, Amponash & Sackey, 2013). In fact, concentration is the master skill of mental toughness and without concentration an athlete will be completely lost, said by Goldberg (2003, cited by Bhardwaj, Singh & Rathee (2014). Thus, benefits from taking control over unproductive negative energy are likely to result in positive competition outcomes (Kuan & Roy, 2007).

Moreover, the findings indicate a 'room for improvement' for sport confidence; visualization and imagery; motivational level; positive energy control and attitude control. This means scholar athletes' need to enrich their ability to cope with pressures, frustrations and stresses; improve proper focus and concentration before, during and after every competition; develop their ability to create positive mental images; increase the value of the willingness to persevere; strengthen their habits of thoughts that are unyielding; and ignite the positive energy to have fun and be satisfied with their sport. Hence, the result suggested that scholar athletes from Region 02, Philippines have innate capability to be mentally tough, yet still need to be improved.

These findings conform to a study on mental toughness of junior Kabaddi players conducted by Soman & Roy in 2004 (cited by Patel, Pandey & Saxena, 2011) where they also found a 'need to learn' imagery techniques and enhance self-confidence. Williams (2001) stated high self-confidence, positive imagery, more attention and concentration are the necessary psychological features for optimum performance in athletes. Taylor, Gould & Rolo (2008) specified imagery and visualization as the strongest predictors of successful performance and a positive energy that boost athlete's confidence level (Gyambrah, Amponash & Sackey, 2013).

Difference on scholar athletes' level of Mental Toughness when grouped according to gender: The data indicated a significant difference between scholar athletes' level of mental toughness when grouped according to gender, specifically on *self-confidence, visual and imagery, motivational level and positive energy.*

The underlying principle behind gender differences in sport confidence was explained in a study conducted by Hays et al., (2007) where the researchers concluded that female athletes have lower levels of sport confidence because they derived confidence more from the social support of their coach, whereas male athletes derived confidence from the belief in their coach who gives them the right direction and training regimen. Hays *et. al*. (2007) further posited that female athletes draw sport confidence from a perceived competitive advantage while male athletes simply believed that they were better than their opponents.

The findings of the present study also observed that the male athletes to secure higher score than female athletes in imagery and visualization, which conforms with the results of Dachen (2012) who also observed that male athletes perform better than female athletes in imagery during competition.

Katsikas, Argeitaki & Smirniotu (2009), as well, reported that female athletes did not have enhanced function of imagery than males.

In motivation and positive energy, result of the present study is in agreement with Gill (2002) who stated that male athletes were more victory-oriented and focused more on interpersonal comparison, while female athletes were more goal oriented and focused more on personal goals.

In terms of negative energy control and attention control, though observed to have no significant difference between male and female, female athletes, on the other hand, have higher mean score on negative energy control and attention control which imply that they were better in controlling negative emotions such as fear, anger and frustration. Hence, the possibility of getting anxious very easily is low which infers that the ability to handle crisis rationally and wisely is high. They were better at remaining focused with full concentration on the game despite stress and pressure from the coach, the crowd and co-athletes. These findings concurred with the study of Subramanyam, Singh & Yadav (2012), Bhardwaj, Singh & Rathee (2014) in which the study on gender differences and mental toughness, they also found that the female athletes score significantly higher on negative energy control and higher level of concentration abilities than male athletes.

Difference on scholar athletes' level of Mental Toughness when grouped according to type of sport: The observed no-significant difference on scholar athletes' level of mental toughness when grouped according to their type of sport implies that athletes show similar degree of mental toughness regardless of their type of sport. The result of the present study conform to the findings of Nicholls, Polman, Levy, & Backhouse (2009) whom in their study about mental toughness and its relationship with achievement level, gender, age, experience and type of sport also revealed a no-significant difference among athletes who participate in team or individual sports.

However, out of the seven (7) attributes of mental toughness, one (1) attribute, that is, negative energy was found to have significant difference with athletes' type of sport with t-value of -2.54 with probability value of 0.012. A similar study on mental toughness by Golby & Sheard (2004) reported to have differences related to athletes' negative energy control. The tendency to possess negative energy control is more likely to occur with team athletes; for example, an athlete may question his teammate's capability to respond quickly about non-verbal cues during the competition. When expectations of his teammate's support and reinforcement are not met, it may lead to anger and frustration and may eventually affect sport performance. On the other hand, since team athletes generally were more extrovert than individual athletes (Mark, Ian & Marc, 2011), they were more likely to use problem-focused coping which may facilitate a better understanding between team athletes.

It is also apparent that team athletes when compared to individual athletes score high on majority of the attributes of mental toughness; this indicated that team athletes are more competitive than individual athletes (Steinberg, 2004 cited by Jalili et al., 2011)

CONCLUSION AND RECOMMENDATION:

The results of the present study indicated that scholar athletes of selected State Universities and Colleges in Region 02, Philippines have the ability to be mentally tough. However, coaches and sport psychologists still have to improve this ability, specifically building their self-confidence; improving their ability to cope with pressures, frustrations and stresses; enriching proper focus and concentration before, during and after every competition; develop their ability to create positive mental images; increase the value of the willingness to persevere; strengthening their habits of thoughts that are unyielding and igniting that positive energy to have fun and be satisfied with their sport.

Moreover, the observed significant difference on scholar athletes' level of mental toughness when grouped according to their gender suggested that gender influences mental toughness, that is, gender is an important interpersonal factor in competitive sport (Subramanyan, Singh & Yadav, 2012). On the other hand, scholar athletes' level of mental toughness shows similar degree regardless of their type of sport. Hence, it reported a no-significant difference on scholar athletes' level of mental toughness when grouped according to their type of sport.

Loehr (1986) stated that given the raw talent, mental and emotional control needed for consistent performance is learned. Mentally tough athletes are disciplined thinkers and respond to pressure by

remaining relaxed, calm and energized; they also have the ability to increase their flow of positive energy in adverse conditions (Loehr, 1986 cited by Kuan & Roy, 2007; Golby & Sheard, 2004). Athletes' mental toughness could highlight an athlete's specific psychological skills, which might require attention and development (Hogg, 2007).

Hence, in the attainment of an excellent sports performance, training should be holistic; it is then recommended that a coach and a sport psychologist be working hand-in-hand to develop both the physical and psychological skills of the athlete. Aside from the regular physical training, the inclusion of a Psychological Skills Training (PST) program is also essential. Psychological Skills Training (PST) program is an individually designed combination of selected methods to meet the psychological skill needs (Gill, 2000). PST program provides athletes and teams with the skills and strategies to overcome cognitive and emotional barriers (Blumenstein, Lidor & Tenenbaum (2005). Coaches and athletes have to turn to Psychological Skills Training (PST) program in order to gain a competitive edge, the ways to manage competitive stress, control concentration, improve confidence and increase communication skills (Heil & Zealand, 2001). Empirical studies support the positive influence of Psychological Skills Training (PST) on sports performance (Rogerson & Hyrcaiko, 2002; Sheard & Golby, 2006; Pates, Maynard & Westbury, 2001; Mamassis & Doganis, 2004); Johnson, Hrycaiko, Johnson, & Halas, 2004).

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