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Ghazali, N. M., Fauzan, N., Anuar, A., Aden, E.

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## Descriptive Study on Demographic Factors and Performance Strategies among Athletes

Ghazali, N. M.

Faculty of Cognitive Sciences & Human Development, Universiti Malaysia Sarawak, Malaysia

Fauzan, N.

Faculty of Cognitive Sciences & Human Development, Universiti Malaysia Sarawak, Malaysia

Anuar, A.

Faculty of Cognitive Sciences & Human Development, Universiti Malaysia Sarawak, Malaysia

Aden, E.

Faculty of Cognitive Sciences & Human Development, Universiti Malaysia Sarawak, Malaysia

### Abstract

The purpose of this research was to investigate the differences between demographic factors and performance strategies among athletes. The demographic factors such as gender, years of study, and years of involvement in sports play an important role in the use of performance strategies in determining their performance strategies in sports. The instrument used for this research was the Test of Performance Strategies (TOPS) to measure the performance strategies. The finding has shown that there were significant differences between the demographic factors and the performance strategies. The demographic variables consist of age, gender, year of study, and years of involvement in sports. The performance strategies include the constructs (goal setting, relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity). In general, the result showed that the differences between the demographic factors such as; gender at  $t(21) = 13.75$ ;  $p < .05$ ; years of study at  $t(21) = 9.46$ ;  $p < .05$  and years of involvement at  $t(20) = 11.37$ ;  $p < .05$  and the performance strategies were significant. In addition, there were significant differences between the demographic factors (age, gender, year of study, and years of involvement in sports) and all sub factors in the performance strategies such as goal setting, relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity. Based on the findings, it can be inferred that to enhance the athletes' ability and competency in sports, they have to be trained in various styles/methods according to their age, gender, years of study, and years of involvement.

**Keywords:** Demographic Factors, Gender, Years of Study, Years of Involvement, Performance Strategies, Athletes

### **Introduction**

Psychological strategies training plays an important role to help athletes in enhancing their sports performance (Thelwell *et al.*, 2006) and improving the psychological state variables such as pre-competition anxiety (Fletcher & Hanton, 2001), the self-efficacy during competition (Lowther *et al.*, 2002), motivation, and reducing stress level (Hanton & Jones, 1999).

With all these skills, most sports coaches perceive that their athletes can potentially experience less stress and high coping skills, contributing to a more effective recovery after competition or exercise. Even so, such use of the psychological skills is different between in practice and competition scenes. The role of mental skills among collegiate athletes during exercise and competition were significantly different (Frey *et al.*, 2003).

The psychological strategies are fundamental to develop the athletes' performances. According to the psychological skills have been known to increase a number of psychological variables including self-confidence, satisfaction, and enjoyment in athletes (Birrner & Morgan, 2010; Tod *et al.*, 2011). Other skills related to psychological are the goal-setting, attentional focus, coping skills, and mental toughness. The strength of psychological skills will assist athletes in optimising their physical skills and empower their performance (Smith *et al.*, 1995; Birrner & Morgan, 2010).

### **Demographic Variable (Gender)**

Gender has been identified as a major factor in measuring the performance of athletes through the impact of height, weight, body fat, muscle mass, aerobic capacity, or anaerobic threshold as a result of genetics and hormonal differences (Perez-Gomez *et al.*, 2008). From this finding, gender has represented as the main factor in determining the performance and achievement of athletes.

Previous research findings have reported that women were more likely to achieve a lower record in sports performance (Perez-Gomez *et al.*, 2008). Moreover, the physical and psychological capability of women and men athletes were significantly different (Umeda *et al.*, 1999). The performance gap between male and female athletes in the Olympic games have been consistently immense since 1983 (Valerie, *et al.* 2010).

Women who have achieved high level of performances were incomparable with male athletes' performances (Cheuvront *et al.*, 2005). The performances improved according to gender differences. The performance stability appears through the following parameters: coefficients of variation, slope coefficients, coincident breakpoint dates between world records, and ten best performances. This performance stability is not affected by the external, non-physiological factors such as technology and doping advancements that could challenge it.

The rapid change on the females' performances that have been observed could also be explained by the increasing number of events proposed to women and by the investment of East European nations

in the women's sports (Geipel, 2001; Seppelt & Schück, 1999). On the other hand, the misuse of drugs (doping) to boost the sports performance have been a controversial issue among athletes. The drug is typically used to increase the muscle strength, aggressiveness, and performance (Franke & Beredonk, 1997; Geipel, 2001).

According to Dias et.al (2010), there were differences in the coping strategies between male and female. This may also explain the coping strategies of male and female athletes. However, research has found that there were no differences in the coping skills based on the age of individuals (Milavic et.al, 2013).

Christos et al. (2009) reported there were differences in the psychological skills by gender among elite athletes, with females displaying less effective emotional control and relaxation. These findings would be taken into consideration by the coaches and sport psychologists to help athletes improve their performances (Christos et al., 2009).

### **Demographic Variable (Age)**

Young female volleyball players have not displayed any differences in their coping skills though their experiences in sports varied (Milavic et al., 2013). Belem et al. (2014) indicated that there were no differences in the coping strategies based on gender and ranking. This clearly inferred that age might potentially have less impact on the coping strategies among athletes and they might improve performance based on their ability.

### **Demographic Variable (Year of Involvement)**

Milavic et.al (2013) found that there were no significant differences in the measures of psychological coping skills between the players of youth and junior age category. In the study, the lower level of somatic and cognitive anxiety and a higher level of self-confidence in juniors as opposed to youth players were explained by the greater experience of junior players and their generally high level of technical-tactical skills as a consequence of a longer period of training and competing (Dias, 2013). It can be inferred that the duration of involvement in sports is crucial because it allows the athletes to be exposed to different experiences in improving their sports performance.

Junior players were reported to have better performances in volleyball especially in the training sessions due to the increased confidence level and decreased anxiety level (Milavic et al., 2013). This finding extends the idea that the young athletes are likely to be more energetic in the sports performance.

There were no significant differences in the level of psychological coping skills between the players with different roles in their teams despite the differences in the characteristics of tasks they perform during a match or a training session (Milavic et al., 2013).

### **Performance Strategies**

The performance strategies can be measured using the Test of Performance Strategies (TOPS) by Lane et al. (2004). This instrument comprises of eight (8) subscales which include goal setting,

relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity. This test was used for athletes who have applied the psychological skills and strategies and less negative thinking when performing at the national or international level (Thomas, et. al., 1999).

Previous findings have indicated that the international athletes have applied more of the psychological strategies in enhancing their sports performance. Both male and female athletes with high level of performances have used more psychological strategies than the athletes with lower level of performances (Thomas et, al., 1999). Meanwhile, senior athletes have applied the use of emotional control strategies but lack of the use of imagery and activation (Thomas et., al.,1999). The psychological dimension is imperative in developing the performance of athletes.

The performance climate has positively predicted the cognitive distress, whereas the mastery climate has negatively predicted the coach and team sources of distress (Pensgaard et al., 2000). There was a significant main effect on the performance climate based on the ability perceived by athletes (Pensgraad, et. al. 2000). Athletes who have low perceptions on their ability were more likely to rely on the coach and team and had the tendency to be more distressed than those who have high perceptions on their ability. These findings were consistent with the fact the psychological strategies and skills are the important components to reduce negative thinking among athletes who aim to achieve high performances.

### **Theoretical Framework**

Self-determination theory explains about the self-determined behaviours that reflect on choice, pleasure, and goal implementation that is coherent with one's value (Amiot et al., 2004) and focus on the intrinsic motivation as well as integrated and identified regulations. Self-determined behaviors are related with how a person deals with stressful situations and uses the adaptive coping process (Amiot et al., 2004). Based on this theory, athletes with high self-determination are more likely to work actively on achieving their goals. However, sometimes their internal motivation may be affected and they need the adaptive strategies for sustainability. One of the adaptive strategies that can be applied is the psychological strategies and skills as means to enhance their sports performance.

There were less empirical evidences on the relationship between self-determination and performance in the context of sports (Nikos, 2001). Despite the lack of research in this area, the principal and concept of this theory can be linked with the psychological strategies and skills which become the main component of this study.

### **Methods**

#### **Participants**

25 UNIMAS students who involved actively in sports (athletes) have participated in the study. Meanwhile, 20 non-athlete students were selected for this study as a control group. The athlete respondents were required to complete the questionnaires. The qEEG test was conducted on both athlete and non-athlete groups.

### Data Collection

The Test of Performance Strategies (TOPS) was utilized to measure the differences between demographic factors (gender, age, years of study, and years of involvement) and performance strategies in sports among UNIMAS athletes. There are eight (8) subscales in the Test of Performance Strategies (TOPS) which include goal setting, relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity. Respondents were requested to respond on a 5-point Likert scale ranging from 1 (never) to 5 (always). The internal consistency for the eight (8) subscales was  $\alpha$  values of 0.88. The participation in this study was on voluntary basis. They were requested to complete the informed consent forms to participate in the study.

**Table 1:** Example of 7-point Likert scale of the TOPS, from 1 (Never) to 5 (Always)

<b>1</b>	<b>5</b>
<b>Never</b>	<b>Always</b>

### Results

#### Demography

There were 20 respondents in the study that consist of athletes in UNIMAS. 50% female and 50% male respondents have participated in the study (Refer Table 2).

**Table 2:** Respondents by Gender

<b>Gender</b>	<b>Frequency (n)</b>	<b>Percentage (%)</b>
Male	10	50
Female	10	50

#### Differences between Gender and Performance Strategies

The results have revealed the descriptive data for gender and performance strategies ( $M = 1.50$ ,  $SD = 0.51$ ). There were significant differences between gender and psychological strategies used in sports at  $t(21) = 13.75$ ;  $p < .05$ .

**Table 3:** Mean Value of Gender and Performance Strategies

<b>Gender</b>	<b>Means (M)</b>	<b>Variance (SD)</b>
Gender	1.50	0.51

\* $p < 0.05$



**Table 3:** Differences between Gender and Psychological Strategies

Gender	<i>t</i>	Df	Sig.
Gender	13.75	21	0.00
TOPS	55.44	21	0.00

\***p < 0.05****Differences between Years of Study and Performance Strategies**

The mean score for years of study was 2.55 (SD = 1.26). The results indicated that there were significant differences in the practice of psychological strategies among respondents by years of study, at  $t(21) = 9.46$ ;  $p < .05$ .

**Table 4:** Mean Value of Years of Study and Performance Strategies

Years of Study	Mean (M)	Variance (SD)
Years of study	2.55	1.26

\***p < 0.05****Table 5:** Differences between Years of Study and Psychological Strategies

Years of Study	<i>t</i>	df	Sig.
Years of Study	9.46	21	0.00
TOPS	55.44	21	0.00

\***p < 0.05****Differences between Years of Involvement and Performance Strategies**

The mean value for years of involvement was (M = 6.90) and its variance was (SD = 2.79), and the result has shown that there were significant differences in the practice of psychological strategies among respondents by years of involvement in sports at  $t(21) = 11.37$ ;  $p < .05$ .

**Table 4:** Mean Value of Years of Study and Performance Strategies

Years of Involvement	Mean (M)	Variance (SD)
Years of involvement	6.90	2.79

\***p < 0.05**

**Table 5: Differences between Years of Involvement and Psychological Strategies**

Years of Involvement	t	df	Sig.
Years of Involvement	11.37	21	0.00
TOPS	55.44	21	0.00

\*p < 0.05

### Conclusion and Implications

Findings have reported that there were significant differences between the demographic factors (gender, years of study, and years of involvement) and performance strategies (goal setting, relaxation, activation, imagery, self-talk, attentional control, emotional control, and automaticity) among athletes in UNIMAS. Previous research has confirmed the linkage between gender variable and performance strategies in sports (Tim, et. al, 2010). On the other hand, there were lack of empirical evidences on how year of study and years of involvement might affect the athletes' the performance strategies. It is recommended that the future research on the performance strategies in sports utilize the MANOVA and ANOVA analysis to gain more insights and understanding on the athlete's sports performance.

### Corresponding Author

Ghazali, N. M., Faculty of Cognitive Sciences & Human Development, Universiti Malaysia Sarawak, Malaysia. Email: gnmazlina@unimas.my

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