



Symptoms of Stress among Student-Athletes of Universiti Teknologi MARA (UiTM) Malaysia

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Authors' contributions

The work presented here was carried out in collaboration between all authors. All authors have contributed to, seen and approved the manuscript.

Research Article

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ABSTRACT

Background of the Study: Recent evidence suggests that student-athletes may experience greater levels of stress or anxiety due to the dual demands of athletics and academics expectation placed on them. A lot of pressure is placed on collegiate athletes to achieve excellence in academics and sports. The symptoms of stress are known as physiological, behavioral, cognitive and emotional.

Aims: The main purpose of this study was to examine the symptoms of stress among student-athletes who compete at differing levels in Malaysia.

Study Design: Comparative descriptive study design was used to compare the symptoms of stress among athletes.

Place and Duration of Study: Sample: The participants of this study were recruited from student-athletes of Sport Science and Recreation Faculty, Universiti Teknologi MARA (UiTM), Malaysia.

Methodology: The sample consisted of 152 athletes, with national (N=41), state (N=33), district (N=37) and university (N= 41) level athletes. Based on this sample, there are 80 male and 72 female student-athletes. The student-athletes voluntarily participated in the study and they were randomly selected during a sport event. The instrument used for the

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study comprised of a 28-item Symptoms of Stress, which include Physiological symptoms, Behavioral Symptoms, Cognitive Symptoms and Emotional Symptoms.

Results: The results showed that university level athletes exhibited higher levels of physiological and cognitive stress than other categories of athletes. The result also showed that the national level athletes exhibited higher level of behavioral symptoms of stress.

Conclusion: The findings of this research determined that there are differences in the symptoms of stress, showed by different categories of Malaysian athletes. Sport psychologists, sport counselors and coaches should use the present findings to recommend cognitive and physiological coping strategies to university athletes and behavioral strategies to national level athletes, while dealing with their stress.

Keywords: Stress; physiological; cognitive; behavioral; emotional.

1. INTRODUCTION

The transition from high school to college can be stressful for any student [1], but recent evidence suggests that athletes may experience even greater levels of stress due to the dual demands of athletics and academics expectation placed on them [2]. Research of [3] showed that 95% of male athletes and 86% of female athletes were stressed of tests, assignments and examinations. Student-athletes experienced stress when they perceived that the academic expectations on them were too high. Pressure occurs on student-athletes when people feel that they must do well in academic and sports. Time pressure is one of the most common forms of pressure among athletes [4,5]. In other words, student-athletes were forced to do well in academic and sports at the same time.

Furthermore, in competitive sports, a lot of pressure is placed on collegiate athletes to excel in performance. Stress affects athletes' performance in academic and sports achievement because it causes anxiety by perceiving the situation as threatening [6]. Heavy match schedules, competition for match venues, media fans pressure as well as the pressure to win developed high level of anxiety or stress in the athletes [7].

Recent investigations found that student-athletes suffering from stress resulted from pressure to win, excessive anxiety, financial constraint, frustration, conflict, time, fear of academic failure, fear of negative social evaluation, all of which significantly affected their physical, mental or emotional health [8,3,9].

According to [6], the symptoms of stress can be divided into physiological, behavioral, cognitive and emotional elements. The physiological elements activate the autonomic arousals, negative symptoms such as feelings of nervousness, difficulty of breathing, high blood pressure, dry throat, muscular tension, rapid heart rate, sweaty palms and butterflies in the stomach [10,11,12]. The behavioral symptoms of stress include lack of sleep, loss of appetite, alcohol and drugs abuse, smoking and failure to attend classes or training [6]. The cognitive symptoms are the mental component, characterized by negative expectations on success or self-evaluation, negative self-talk, negative thoughts, fear of failure, loss of self-esteem, low self confidence, worries about performance, images of failure, inability to concentrate and disrupted attention [6,10]. The emotional symptoms of stress include depression, sadness, irritation, emotional outburst, panic attacks, inability to cope and frequent mood swings [6]. Cognitive symptoms can deteriorate athletes' performance by disturbing their concentration (26). Athletes have a tendency to behave aggressively, prone

to cause accidents, smoking, drugs abuse and alcohol, as the behavioral symptoms of stress [13,9]. When an athlete is in stress, his physiological symptoms appear in the form of muscle contraction and difficulties in breathing, which can lead to negative impact on his performance [14,10,15,9].

Even though there are quite a number of studies that have been done on the symptoms of stress on athletes, but little has been done on the symptoms of stress according to the levels of the athletes' skills. In Malaysian universities, there are four levels of athletes according to their skills, namely, national, state, district and university. National level is the highest level, representing the county in sports. State level player, included as the second highest skill level, represent the state in sport competition. They are the athletes who still fail to compete in national level. Malaysia consisted of 13 states. The third skill levels are the representative of the district level. District is much smaller than state. A district is a subdivision of a state. For a example, Selangor (state) have 9 district, namely, Gombak, Hulu Langat, Hulu Selangor, Klang, Kuala Langat, Kuala Selangor, Petaling, Sabak Bernam and Sepang. Lastly, the university players are the lowest level players. These players only compete between universities or college, since their performance in sports is not as good as those who represented the national, state or district level players. Sometimes they were forced to take part in competition since no one representative for the university.

The main purpose of this study was to examine the symptoms of stress among student-athletes of different levels, which consists of national, state, district and university level athletes. The highest achievement obtained by the athletes in sports competition becomes their category.

2. METHODOLOGY

The participants of this study were recruited from student-athletes of Sport Science and Recreation Faculty, Universiti Teknologi MARA (UiTM). The instrument used for the study comprised of a 28-item Symptoms of Stress, which include Physiological symptoms (7 items), Behavioral Symptoms (7 items), Cognitive Symptoms (7 items) and Emotional Symptoms (7 items). The sample consisted of 152 athletes, with national (N=41), state (N=33), district (N=37) and university (N= 41) level athletes. Based on this sample, there are 80 male and 72 female student-athletes. The student-athletes voluntarily participated in the study and they were randomly selected during a sport event.

3. RESULTS AND DISCUSSION

3.1 Physiological Symptoms

Table 1 shows the mean scores for the physiological symptoms among the athletes of different skills, $F(3, 152) = 15.101, p = .01$. Apparently, significant differences emerged for the athletes having different skills at competition. Overall, the mean score obtained for the national level athletes was lower than those in other categories.

Table 1. Physiological Symptoms According to the Skills

Skills of athletes	Mean	F-Value	P-Value
National	17.3312	15.101**	0.000
State	22.2143		
Distict	24.7789		
University	25.4421		

**p=.01

Post-Hoc Tukey Test (Table 2) showed that the level of physiological symptoms of university were higher than state (p=.05) and national (p=.05), but no significance difference with district level athletes (p>.05). Furthermore, the level of physiological symptoms of district were higher than state (p=.05) and national (p=.05), but no significance difference with university level athletes (p>.05). In addition, the level of physiological symptoms of state were higher than national (p=0.05), but lower than district (p=.05) and university (p=.05) level athletes. Lastly, the level of physiological symptoms of national were lower than state (p=.05), district (p=.05) and university level athletes (p=.05).

Table 2. Post hoc tukey test: physiological symptoms according to the skills

Skill of athletes	National	State	Distict	University	N
National		* (2.121)	* (2.718)	* (2.551)	41
State					33
Distict				X	37
University					41

*p=.05

The result showed that the physiological symptom of stress was higher on university level athletes compared to other categories. University level athletes is the lowest skill level athletes, where their skills still are poor compared to other categories of athletes like those who represented national, state and district level. Yet, their physiological symptoms were higher compared to other categories of athletes.

The result also showed that national athletes scored the lowest in physiological symptoms. This situation can be explained using Drive Theory. According to Drive theory, the effect of arousal upon a beginner or low skilled athletes may be different from its effect upon a skilled performer [8]. For example, the presence of audience may enhance the performance of higher skilled athlete than lower skilled athletes. Many studies have shown that elite athletes exhibit the lowest level of cognitive and physiological symptoms of stress [16,17]. Besides that, a few research showed elite athletes used various kind of coping strategies and had a high self confidence which reduced their cognitive and physiological stress [18,8,19,9]. For example, a few research indicated that positive self-talk, which deals with stressful situations, can eliminate the physiological symptoms [6,18,14,8,9].

3.2 Behavioral Symptoms

Table 3 shows the mean scores for the behavioral symptoms among the athletes of different skills, $F(3,152) = 17.211$, $p = .01$. Apparently, significant differences emerged for the athletes having different skills at competition. Overall, the mean score obtained for the national level athletes were higher than those in other categories.

Table 3. Behavioral symptoms according to the skills

Skills of athletes	Mean	F-value	P-value
National	27.1427	17.211**	0.000
State	25.3347		
Distict	19.0012		
University	20.3341		

** p=.01

Post-Hoc Tukey Test (Table 4) showed that the level of behavioral symptoms of university were higher than state (p=.05) and national (p=.05), but no significance difference with district level athletes (p>.05). Furthermore, the level of behavioral symptoms of district were higher than state (p=.05) and national (p=.05), but no significance difference with university level athletes ((p>.05). In addition, the level of behavioral symptoms of state were higher than national (p=.05), but lower than district (p=.05) and university (p=.05) level athletes. Lastly, the level of behavioral symptoms of national were lower than state (p=.05), district (p=.05) and university level athletes (p=0.05).

Table 4. Post hoc tukey test: behavioral symptoms according to the skills

Skill of athletes	National	State	Distict	University	N
National		*(2.217)	*(2.143)	*(3.101)	41
State					33
Distict				X	37
University					41

*p=.05

The result showed that the behavioral symptoms of stress were higher on national level athletes compared to other categories. This showed that the national athletes are using alcohol, drug, excessive drinking of coffee, smoking and showing aggressive behavior to cope with their stress. This result supported by the research done by [20] and [21], that elite athletes uses more drugs compared with lower skilled athletes. Research indicates that the usage of alcohol and smoking is higher in athletes compared to non-athletes [22,13,23].

The pressure for excellence on academic and sports are higher on elite athletes compared to the lower skilled athletes, parents and fans, which might influence elite athletes to take drugs, smoking, excessive drinking coffee and alcohol [24,13,25,26].

3.3 Cognitive Symptoms

Table 5 shows the mean scores for the cognitive symptoms among the athletes of different skills, $F(3,152) = 14.247$, $p = .01$. Apparently, significant differences emerged for the athletes having different skills at the competition. Overall, the mean score obtained for the university level athletes was higher compared to those in other categories.

Table 5. Cognitive symptoms according to the skills

Skills of athletes	Mean	F-Value	P-Value
National	17.1107	14.247**	0.000
State	20.7181		
Distict	20.4456		
University	22.2841		

** $p=.01$

Post-Hoc Tukey Test (Table 6) showed that the level of cognitive symptoms of university were higher than district ($p=.05$), state ($p=.05$) and national ($p=.05$) level athletes. Furthermore, the level of cognitive symptoms of district were higher than national ($p=.05$) and lower than university, but no significance difference with state level athletes ($p>.05$). In addition, the level of cognitive symptoms of state were higher than national ($p=.05$) and lower than university ($p=.05$), but no significance difference with district level athletes ($p>.05$). Lastly, the level of cognitive symptoms of national were lower than state ($p=.05$), district ($p=.05$) and university level athletes ($p=.05$).

Table 6. Post hoc tukey test: physiological symptoms according to the skills

Skill of athletes	National	State	Distict	University	N
National		* (2.330)	* (2.412)	* (2.117)	41
State			X		33
Distict					37
University					41

* $p=.05$

The result showed that the cognitive symptoms of stress were higher on university level athletes compared to other categories. Since, university level athletes have the lowest skill in sports, they have the tendency to worry on the negative evaluation of their schoolmates, teachers, friends, fans, which can lead the level of cognitive anxiety increase [6]. Once athletes' experienced higher level of cognitive symptoms in a sport situation like worrying and it combines with increases of arousal beyond an optimal level, there will be a quick or catastrophic decrease in performance [8,9]. The coach and sports psychologist can only help the athletes if they know the levels of cognitive anxiety on athletes, since it affect their performance. The level of cognitive anxiety can be reduced using cognitive coping strategies. However, many coaches and athletes are using ineffective coping strategies since fail to determine the levels of cognitive anxiety on athletes [18].

3.4 Emotional Symptoms

Table 7 shows the mean scores for the emotional symptoms among the athletes of different skills, $F(3, 152) = 10.112$, $p > .01$. Apparently, no significant differences emerged for the athletes having different skills at the competition.

Table 7. Emotional Symptoms According to the Skills

Skills of Athletes	Mean	F-Value	P-Value
National	10.2247	10.112	0.000
State	10.1307		
Distict	11.3345		
University	10.7613		

No significant differences found among different categories of athletes. The means the emotional symptoms are the lowest compared to the other symptoms. This showed that the four categories of athletes, representing university, district, state and national, can control their emotional symptoms. The emotional symptoms of stress like depression and sadness can be faded very quickly on student-athletes since they involve in academic activities as well. According to [11], emotion occurs on athletes if they only interpreted the sport situation have a negative significance on their well being. Furthermore, the emotional symptom of stress depends on how far an athlete can cope with the stressful situation [27]. If the athletes can cope with the stress situation, the emotional symptoms of stress may not prevalent.

4. CONCLUSION

The result showed that athletes of university skill exhibited higher physiological and cognitive stress symptoms than those in state and district categories, whereas national athletes showed the highest stress on behavioral symptoms. The findings of this research determined that there are differences in the symptoms of stress, showed by different categories of Malaysian athletes. These differences were related to their level of skill. Therefore, the present result is concurrent with the Drive Theory that the level of athletes skilled in sports effects the symptoms of stress. Since this is the first research study to use the 28-item symptoms of stress assessment with athletes, and in Malaysia, much more research is required to prove any results.

Sport psychologists, sport counselors and coaches can use the present findings to recommend cognitive and physiological or somatic coping strategies to university level athletes. In sports, the levels of stress at competition deteriorate the performance. Cognitive techniques are positive self-talk, physical activity, goal setting, thinking on practice, thought stopping, remember the worst-case scenario, focus on what you can control, imagery and simulation, While somatic techniques are breathing techniques, meditation, progressive relaxation, autogenic training and biofeedback.

Furthermore, future research on stress should focus on gender and types of sport. As biology or physiology elements differ among gender, this may influence the symptoms of stress. Since the environment of individual and team sports differ, this also may affect the symptoms of stress differently.

CONSENT

For data gathered during quantitative surveys (questionnaires), where no personal data are collected or where personal identifiers are removed from the data, obtaining written consent may not be required. Anyway, information sheet had been provided to participants, making clear that consent is implied from participating in the survey or filling out the questionnaire.

ETHICAL APPROVAL

Ethical approval is not required for this research since the questionnaires do not involve the collection or use of confidential or sensitive personal information.

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COMPETING INTERESTS

We declare that we have no significant competing financial, professional, personal relationships or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

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