A Comparison between Individual and Team Sport in temporal Patterns of Pre-Competition Profile of Mood States

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ABSTRACT

The main purpose of this study was to compare temporal patterns of pre-competition mood states between individual and team sport among UiTM university students. The participants comprised of male and female athletes age ranged 18 to 26years old (N=214). Mood states were measured by the Profile of Mood States (POMS) questionnaire that includes six sub-scales, anger, confusion, depression, fatigue, tension and vigor. The questionnaire was distributed to the participants within three time frames (one week, one day and an hour) prior to competition. In order to analyze data, descriptive statistics (mean, standard deviation), and repeated measure ANOVA were utilized. The alpha (α)level was set at 0.05. The result indicated that the team sport participants perceived slightly higher level of POMS (mean=2.156) in compared with the individual participants (mean=2.145). However, in sub-scales of POMS, there is a significant difference in depression, confusion, tension and vigor at different time-to-event. The results show that there is not any significance in individual and team sports in one week before competition. However, in one day the only sub-scales with no significance is just tension. In comparing with results in a day before, temporal patterns results indicate that a significant difference were noted in tension and vigor at one day before the competition.

Keywords: pre-competition, Profile of mood state, temporal patterns

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INTRODUCTION

Academically and practically, sport psychologists endeavor to understand effective factors influencing mood states and stress before competition in athletes that can effect their performance. Moods are known by many psychologist researchers as a sort of short term feelings status or emotional tone which might involve various particular types of positive or negative emotions [2, 8, 9, 11, 21]. However, there is another definition of mood states, for instance, "illustrations of a process in which an individual attempts to adapt to environmental demands and external factors such as physical movement and weather condition which affect on mood states " [4, 20]. Additionally, Terry et al.[21], stated that moods is an influential predictor of performance and work like a transitory construct when some situations are met. Despite the fact that internal factors are influential on mood, other factors such as our prediction of what will happen at the competition, also may have their own contributions to the athletes performances [15]. In this regard, logically, there must be some differences between individual and team sports in mood status among athletes before the competition .

Based on Esfahani, et al. [5] and also Gendolla and Krüsken [6] moods can be categorized as negative emotions, for instance anger, confusion, depression, fatigue, tension; however the only positive one is vigor. Gendolla and Krüsken [6] enlightened that moods are able to have an impact on the amount of effort, and any challenge appears harder in a negative mood than in a positive one. The results of study conducted by Beedie et al. [2]; Scott et al. [18]

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showed that there are several factors which have an influence on the early mood states in athletes before competitions start. The most significant factor could be predictive of their efficacy level either in individual performers or team ones. Psychologists concentrate on explore strategies to increase or maintain the intensity of positive mood state and at the same time, try to decrease or remove those mentioned negative moods in performers [5].

When athletes are in a positive mood, they attempt more actively before competition [1, 17]. In addition, according to Beedie et al. [2]; Lowther and Lane [12]; Scott et al. [18], one of the most essential factors which predicts the level of athletes' effectiveness can be their mood before competition starts. Therefore, it seems logical to indicate that the readiness to make excuses before the performance may impress, how athletes feel prior to performance.
The link between pre-competition mood and sport performance has been supported both anecdotally and empirically [2]. It is effective for athletes to be able to perform tactics to run their pre-competition moods. Most of researchers have remarked on mood repair, where the role of sport psychologists is to reduce negative mood and increase positive mood. There is a shortcoming in previous studies regarding the establishment of a relationship between increasing the pre-competition positive mood (vigor) and reducing the pre-competition negative moods (anger, confusion, depression, fatigue and tension) through temporal patterns [4].

Mood states in athletes before competition or at the end of the competition are measured by several methods. Profile of Mood States (POMS) which is the most common measurement tool for mood states, has been formulated by scholars to be used in sport psychology. The one used in the this research is the POMS which was formulated as questionnaires and developed by McNair et al. [14], to calculate six aspects of mood dimensions including anger, confusion, depression, fatigue, tension and vigor. Besides the available volume of research linking pre-competition mood with performance, only few studies have explored changes in responses to the POMS over time [19].

Alteration in mood states are proposed to be transitional in nature. mood states at one point in time influences the interpretation of situational factors that integrate emotional and situational responses to form the subsequent mood states. In this study, Investigation of Pre- competition mood states as the most important variable on the successful performance of athletes, is examined. Players who control their negative mood states will eventually achieve better performance outcome. Hence, this study is carried out to concentrate and compare pre-competition mood states between individual and team sports through temporal patterns.

MATERIALS AND METHODS

Purpose of study
Based on Terry et al. [21] in an individual sport losing calmness, excitement which is a consequence of stress before the competition are several significant factors influencing athletes' performance. However Esfahani et al.[5] believe that in team sport competitions there are several various factors which have influence on the athletes mood before the competition starts, take as an illustration, place of competition, being a guest or host; the quality of training time; and their previous competition result. Psychologists use variant techniques to moderate athletes mood before competition starts for either individual or team sports, for example, loneliness and taking deep breath techniques for individual and on the other side, relaxation methods, imagining the performance and talking to teammate sessions would be known as effective methods to control athletes mood before competition starts for team sports. To give a more concrete proof to importance of the objective of this study, Andrew et al. [1] claimed that types of sport whether individual or team based have a dominant influence on the emergence of negative behaviors. More surprisingly, gender makes no differences in the controlling negative pre-competition moods among athletes.
The aim of this study is not to demonstrate the mood change factors, neither address athletes' negative mood states pre-competition issues. However, researcher illustrates the result of analyzing pre-competition athletes' mood states by applying temporal patterns to make a clear comparison understanding between individual and team sports among UiTM university athletes during MASUM competition which was held in University Putra Malaysia in June-July 2011. Based on the previous studies [8, 16, 17, 21] on pre-competition mood states among athletes, "there should not be significant differences between individual and team sports of mood states in temporal patterns".

Methodology
Based on this field study, statistical population of the present research consisted of all male and female university's athletes (n=214) who participated in MASUM competition an annual competition between Malaysian universities. The nature of sports was not considered in this study due to the purpose of the research which was making a comparison between individual and team sports. Therefore, researchers selected basketball, volleyball, handball, softball as the sample of group team sports (n=84) and tennis, swimming, archery, lawnball, track and field, badminton, squash, bowling and chess as the individual sports participants (n=130). After necessary arrangements with coach and supervisors of teams, the athletes were asked to answer the POMS questionnaires according to the

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feeling before the competition. It must be noted that questionnaires distributed among whole participants in three different time frames according to the temporal patterns (one week, one day and one hour).

Profile of Mood States was utilized to estimate acute mood prior to competitions [14]. The POMS test, consisting of 24 scales that are factored into six mood scores (Anger, confusion, depression, fatigue, tension and vigor) was used to measure fluctuating affective states. It was also mentioned that the whole interest was focused on the players' personal feelings. The POMS questionnaire was given to all participations three times prior to the competition (one week before, one day before and one hour before).

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RESULTS

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In order to analyze the data, descriptive statistic and independent t- test were used in order to fulfill the purpose of the study which is comparison between individual and group team participants. Table 1, shows that, the level of anger in the Profile of Mood States Level by Time-to-Event analysis increased from (M=1. 88±0.807) in one week before the competition to (M=1.96±0.772) in one hour before the competition. In terms of confusion the mean value decreased from (M=1.75±0.839) in one week before the competition to (M=1.72±0.592) in one hour before the competition. For depression in one week before the competition, (M=1.85±0.573) is decreased to (M=1.65±0.585) in one hour before the competition. For fatigue in one week before the competition (M=2±0.742) is decreased into (M=1.90±0.695) in one hour before the competition. For tension in one week before the competition (M=1.95±0.701) is increased to (M=2.05±0.749) in one hour before the competition. Finally for vigor, (M=3.69±0.669) in one week before the competition is decreased to (M=3.55±0.885) in one hour before the competition.

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Table 1. Descriptive Analysis of Profile of Mood States Level by Time-to-Event

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POMS	One Week Before			One day before			One hour before		
	Mean	SD	Std. Error	Mean	SD	Std. Error	Mean	SD	Std. Error
Anger	1.88	0.807	0.054	2.40	0.728	0.492	1.96	0.772	0.005
Confusion	1.75	0.839	0.056	1.81	0.838	0.566	1.72	0.592	0.040
Depression	1.85	0.573	0.038	1.70	0.0625	0.423	1.65	0.585	0.039
Fatigue	2.0	0.742	0.050	1.94	0.718	0.485	1.90	0.695	0.046
Tension	1.95	0.701	0.047	1.92	0.683	0.461	2.05	0.749	0.050
Vigor	3.69	0.669	0.045	3.62	0.858	0.580	3.55	0.885	0.059

Also, the results of table 1 demonstrated the mean values, standard deviations and standard error of the sub-scales of POMS of one week before competition to one hour before competition. By analyzing statistical data it can be seen that mean value is higher in vigor parameter as well as the fatigue factor with 3.69 and 2.0, respectively when the results are obtained for one week before the competition. In terms of Standard Deviation, a depressing factor shows the least values with 0.573 at the same time period. Although for the time period of one day before the competition and one hour before completion results indicate that vigor is still higher in mean values, the second highest mean values differ with the previous time period (One week before competition). Depression still has the lowest Standard Deviation values in both one day before the competition and one hour before competition.
The researcher used the independent t-test showing the differences between individual sport and team sports. The results of the analysis were expressed in table 2.

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Table 2 Independent t-test Result of POMS

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Group Types	POMS		
	One week	One day	One hour
An individual sport	2.145	2.250	2.153
Team sport	2.156	2.213	2.128
Independent T-test (sig)	0.842	0.482	0.612

According to the table 2, there is no significant difference between individual sport and team sport in terms of POMS states on temporal patterns. The descriptive result indicated that in the first phase which was one week before competition, the team respondents perceived slightly higher level of POMS (M=2.156) compare to individual respondent perceptions (M=2.145). However in the individual sports, the result displayed lower level of POMS (M=2.250; 2.153), nevertheless, team sports POMS mean showed (M=2.213; 2.128) in the second and third times of data collection which were one day before and one hour before competition respectively. These two variables are

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lower than three (Neutral assessment) but slightly different. Therefore, with regard to the comparative result there is no significant difference between the perceptions of both groups of respondents about the level of POMS.

Table 3 comparisons between individual and team sports for sub-scales of POMS in Temporal Patterns

POMS sub-scales	One week						One day						One hour					
	Anger	Confusion	Depression	Fatigue	Tension	Vigor	Anger	Confusion	Depression	Fatigue	Tension	Vigor	Anger	Confusion	Depression	Fatigue	Tension	Vigor
Individual Sport	1.91	1.68	1.54	2.18	2.00	3.73	2.27	1.94	1.81	2.05	1.93	3.48	1.89	1.77	1.71	2.02	2.08	3.42
Team Sport	1.83	1.85	1.64	2.08	1.87	3.63	2.58	1.62	1.54	1.79	1.92	3.80	2.06	1.65	1.55	1.73	2.01	3.89
T-test (Sig)	0.445	0.179	0.232	0.304	0.184	0.291	0.002 **	0.007 **	0.002 **	0.008 **	0.949	0.007 **	0.119	0.132	0.056	0.002 **	0.463	0.005 **

* Significant at 0.05 level
** Significant at 0.01 level

The result in the table 3, shows that besides having fluctuated perceived means among those six subscales, the P-values of the t-test is not significant at 0.05 level. Therefore, there is no differences between individual and team sports mood states in one week before competition starts. For example in anger mood, the mean among individuals ($\overline{X}$=1.91) is slightly higher that that perceived by the team sports ($\overline{X}$=1.83), this status was same for tension and vigor also; while this slight dominant is sometimes conversely to the team sports in the other mood sub-scales such as confusion, depression and fatigue.

In the second temporal pattern (one day before competition) results, the condition is totally different. From all six sub-scales, five of them including anger ($\overline{X}$=0.002), confusion ($\overline{X}$=0.007), depression ($\overline{X}$=0.002), fatigue ($\overline{X}$=0.008) and vigor ($\overline{X}$=0.007) has the significant level (P≤0.05). Thus, there is a significant difference between individual and team sports' mood states. However the only sub-scale which gave us a sign of no significant was tension ($\overline{X}$=0.949). The result in one hour pre-competition temporal pattern shows that two of sub-scales consist of fatigue ($\overline{X}$=0.002) and vigor ($\overline{X}$=0.005) have a difference between the perception of individual and team sports. Nevertheless, since the p-value of t-test of the rest of sub-scales, anger ($\overline{X}$=0.119), confusion ($\overline{X}$=0.132), depression ($\overline{X}$=0.056) and tension ($\overline{X}$=0.463) is not significant at P≤ 0.05, it cannot be stated that there is an important difference between the perception of both the sporty types.

DISCUSSION

The result of this study represents that pre-competition athletes' behavioral traits and mood states can be considered as an influential factor in predicting the level of the athlete's performance. Based on the previous research have been carried out by Beedie et al.[2], Scott et al.[18] and Lowther and Lane,[12] who claimed that one of the most important factors in predicting the level of efficacy is athletes' mood states before competition. Mood states alter among athletes and this differentiated influence on the performance of athletes. Narimani,[16], stated that there are several factors which have influence on athletes pre-competition mood states and consequently their performance including the type of sports (team or individual) and individual traits (personality traits and behaviors). Therefore, it may be assumed that the changes in athletes mood status in temporal patterning times are related to many factors for instance, competition environment, coaches, overtraining issues. Lane, [10] in his study concerning the relationship between the mood states and performance in individuals, reported that stress unrest, anger and negative excitement before competition could affect to decrease in their performance. However researches of James and Lane,[8] and Lane and Chappell,[11] concerning the effects of moods on team sports showed that behavior trait of team such as

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volleyball, football and basketball compared to individual sports have lower influence on their performance. Based on his priority, in this study, researcher concentrates on the nature of sports to fulfill the objective and compare pre-competition mood states between several determined individual and team sports.

 In the following sentences, researcher make comparisons of mood states sub-scales between individual and team sports to make a clearer understanding of the situation. Judging from the present result in table 3, "anger" mood state level shows a higher level among individual sport in one week before competition. However, this kind of mood was in greater levels in one day and one hour before competition start. Despite, anger may seem as a negative mood state for athletes, but it can give them vigor and positive motivation for better performance. About "confusion", the higher lever allocates to the team sports compare with individual in one week before competition, however, confusion was more among individual than team sports in one day and one hour. The reason can be the lack of recognition of the rival of athletes in the individual sports, while, in the team sports the body of team have a rarely entirely change, thus the athletes know at least several of the rivals. This mostly happened in the university or local level of competition. The third mood state which goes under analysis is "depression" which represent the same result with confusion. It means that, in one week before competition the level of depression shows higher rate among team sports, but, in one day before and one hour before competition, individuals displays greater rate in comparison with team group. This may be explained by the lack of coherence between team members in the team sports. Nevertheless, this type of mood becomes dominant in one day and one hour before competition among individuals. "Fatigue" and "tension" among athletes have the same configuration rate in the table 3. Following from the analysis, both these moods show higher level among individual sports at all three different times than team sports. It may illustrate by the concentration and focus on coaches and trainers on the individual athletes and it can make a great stress among them and consequently make a less self confidence in individual team members. The result of the study by James and Lane,[8] indicated that the high level of fatigue could be an indicator of staleness or overtraining. Conversely, in team sports, the pressure of training and stress distribute to the whole team and team members support the weakness of each other. Notwithstanding those five negative mood states, "Vigor" has been known as a kind of positive mood status for athletes. In one week before competition, the level of vigor is higher among individual than team sports. Nonetheless, analysis shows indicates a contrary higher level of team sports. There is a logical correlation between vigor status among individual and team sports which is completely inverse. In the team sport, as they are getting closer to the competition, the vigor mood state became stronger from one week to one day and it had an increase again from one day to one hour befroe competition which was due to the fact of increasing self-confidence among team members. However, in individual sports the vigor had a completely diverse scores which showed a decrease as they are getting closer to the time of event.

CONCLUSION

The purpose of this study is to investigate the differences in POMS sub-scales based on the temporal patterning for individual and team sports. According to the hypothesis of this research, results in table 2 show that there is no significant relationship between individual and team sports in POMS sub-scales. However, based on the table 3, the only significant relationships were found in the second and third temporal patterns just in several sub-scales. In addition, the researcher compared each mood states one by one between individual and team sports. Also, available research indicates that, while psychological factors such as general mood and personality may be similar across athletic groups. It is important to consider the task specific nature of the sport investigated.

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