

Mood State Profile as Overtraining Predictors: Considering Gender and Two Different Class Types

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Abstract—it is a general fact that there is a positive relationship between mood states and mental health, which in turn affect the physical state of an individual. The present study aims at comparing the mood state profile as overtraining predictors, in relations to gender and students from two class types: sport coaching versus non-sport coaching. The BRUMS questionnaire was administrated to 339 participants taken from sport science faculty consisting of 98 sport coaching class students and 241 non-sport coaching class students, then taking sex differentiation into consideration. The results indicated that the male respondents show no significant difference in both the positive mood and the negative mood scales between the sport coaching and the non-sport coaching groups. The positive mood of the non-sport coaching group is better than that of the sport coaching group by 3.99% while the scale of negative mood of sport coaching group is higher than that of the non-sport coaching group by 3.27%. The same trend was found in the female respondents as there is no significant difference in both the positive and negative mood scales between the sport coaching and non-sport coaching groups. The non-sport coaching group's positive mood was better than that of the sport coaching group by 4.89%. However, the non-sport coaching group's negative mood score was lower than the sport coaching group as much by 2.34%. It was concluded that, although there are different types of sport coaching class, the non-sport coaching class does not shows any significant difference in student mood state. More so, the positive mood level of men is better than that of women which means that, psychologically, the overtraining syndrome is more easily seen in women than men.

Keywords—mood state, sport coaching students, overtraining syndrome.

I. INTRODUCTION

Students in the Faculty of Sport Sciences are more prone to stress and fatigue. These students are exposed to this stress through class learning activities known as cognitive stressors and field learning activities called physical stressors, and these unknowingly impact on their psychological states. The major concern is the fact that students in sport coaching classes are burdened than necessary due to their enormous practical credits. Consequently, these much physical stressors make their learning a bit burdensome.

Mood is a psychological or emotional state that determines the way someone responds to external stimuli. It is one of the crucial variables that decide one's performance towards success or failure [1]. Due to its importance, numerous studies have been carried on mood management, especially in the field of sport psychology. Various perceptive examinations carried out to evaluate sport training program have shown that mood has a positive relationship with mental health and fitness level. Mood profile can be used as an indicator to study the effectiveness of physical activity and to know the *over-training syndrome* (OTS) which can drastically reduce both the cognitive and physical motivation, as well as reduction in the performance level.

The acute reduction in performance and fatigue experienced by athletes are the consequences of their normal training processes. Overtraining occurs in a situation where there is an imbalance between the stress caused by training and the recovery.. Overtraining is also the accumulation of training and/or non-training stress thereby causing a reduction in performance capacity over a long period of time, disruption of homeostasis and a decrease in some physiological functions with psychological signs and symptoms. And while all these are happening, the restoration is happening at a slow pace, taking several weeks or months [2, 3, 4]. Due to the various processes stated above, the process of concentrated training that lead to overtraining is seen as a continuous sequence [5].

The Profile of Mood States, which is one of the most widely used self-report scale, has been used in assessing the mood and emotional condition of an individual. But for the POMS, it is a single adjective checklist which cannot distinguish whether the subjective feeling state is a mood or an emotion [6]. Also, the POMS assesses six mood states which are anger, confusion, depression, fatigue, tension, and vigor. In addition, it was discovered that the 24-item 6-factor measure was supported through single and multi-sample confirmatory factor analysis according to Terry et al. (1999). More so, it is worth noting that the name of the scale was changed from the Profile of Mood States-Adolescents to the Brunel Mood Scale (BRUMS) [7]. This name change was

done in response to its validation basically using the adults which was only restricted to the adolescents in the time past, as this was no longer appropriate. So basically, the

appropriate name for this all-inclusive scale is known as Brums [8].

II. METHODS

This was a descriptive study with the aim of comparing the mood state profile as overtraining predictors, in relations to gender and students from two class types: sport coaching and non-sport coaching classes.

The data collection process was done following some of stages of implementation. The first thing was to determine the research respondents after which they were told the purpose as well as the aim and objective of the study so as to determine if they would be interested in it or not. Those that showed interest were asked to fill some of their socio-demographic details on the provided forms and then asked to provide answers to the Brunel Mood Scale (BRUMS) questionnaires. The results of the scores obtained from the respondents' questionnaires were then analyzed and categorized based on two indicators: sex and class type.

In selecting the respondents, a simple random sampling was done among the first-year sport science students. The selected 339 respondents were divided into sport-coaching group and non-sport coaching group. There were 73 males and 25 females in the sport-coaching group while 180 males and 61 females were in the non-sport coaching group. Then the mood level of the respondents was measured using the BRUMS questionnaires. This 24-item questionnaire has six factors which are: tension, anger, fatigue, vigor, confusion, and depression, with four sub indicators items in each factor. And the rating of each question was based on a 5-point scale ranging from "not at all" as "0" and "extremely" as "4" (7, 9). Then the six emotional feeling factors were further divided into two categories of mood, which are: positive mood and negative mood.

The data collected was subjected to statistical analysis which include: the t-test so as to know the differences in the mood state profile in both the sport coaching and non-sport coaching groups, the normality and then the homogeneity tests.

III. RESULT

For the 339 students from the Faculty of Sport Science that participated in this research, their age range between 18 and 24 years old. The normality test was done using the Kolmogorov-Smirnov test which gave the value of Asymp.Sig. > 0.05 for all variables (between 0.115 and 0.938), indicating that the data is normally distributed and as such, a parametric statistical approach could be employed in the research. Also for the homogeneity test, the significance value obtained was greater than 0.05 (between 0.103 and 0.688) which means that the sample variant is homogeneous.

Positive Mood

From the results of data analysis, the positive mood condition can be described in the table as follows:

TABLE I. STATISTICAL DESCRIPTION OF THE POSITIVE MOOD

Statistic	Sport coaching Male	Non Sport Coaching Male	Sport coaching Female	Non Sport Coaching Female
Mean	10,5205	10,9389	10,1600	10,6557
Standard Deviation	2,03517	2,30899	1,88591	1,85189
Minimum	7,00	5,00	7,00	6,00
Maximum	16,00	16,00	13,00	16,00

When shown in a graphical form, we have what is shown in the picture below:



Fig. 1. Positive mood average

The aim of the T-test used in this study is to provide an answer to the proposed hypothesis, that is, if there is a significant difference in the mood scale between the two male groups: sport coaching and non-sport coaching students.

The t-arithmetic equal to 1.350 which is less than the t-table 1.97 and a significant value of 0.178 which is greater than 0.05 suggesting that there is no significant difference in the mood level between the two groups of male respondents. Using the mean difference as the deciding factor, which has a value of 0.418, it simply shows that males in the non-sport coaching group have a better positive mood scale compared with the males in the sport coaching group by 3.99%.

Additionally, the value of t-arithmetic in the positive mood scale of female respondents is equal to 1.121 which is also less than the t-table with a value of 1.98 and a significant value of 0.265 which is far bigger than 0.05, all point to the fact there is no significant difference in the mood level of the two groups of female respondents: sport coaching and non-sport coaching as shown on the positive mood scale. Considering it from the mean difference point of view, which has a value of 0.49, shows that the positive mood scale of the non-sport coaching group is also better than that of the sport coaching group by 4.89%.

Negative Mood

From the results of data analysis, the negative mood can be described as shown in the table below:

TABLE II. STATISTICAL DESCRIPTION OF THE NEGATIVE MOOD

Statistic	Sport coaching Male	Non Sport Coaching Male	Sport coaching Female	Non Sport Coaching Female
Mean	29,3973	28,4333	32,0800	31,3279
Standard Deviation	10,2818	9,39101	9,51718	9,28569
Minimum	2,00	1,00	17,00	,00
Maximum	53,00	52,00	58,00	64,00

When shown in a graphical form, we have what is shown in the picture below:

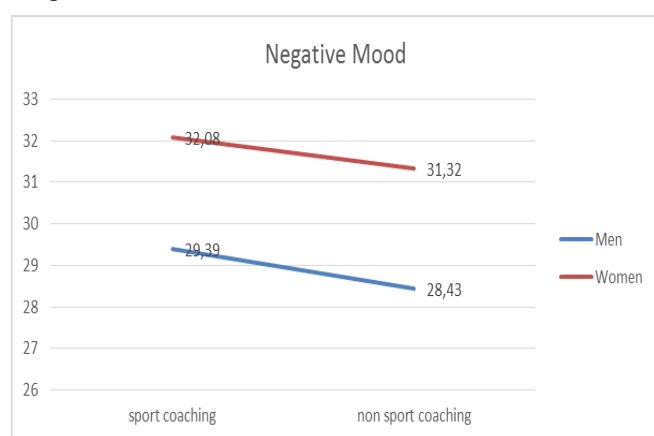


Fig. 2. Negative mood average

In male group respondents, the t-test has a value of 0.339 which is less than the t-table with a value of 1.97 and a very big value of probability significance at 0.473 which is far greater than 0.05. This simply means that there is no significant difference in the mood level, as shown on the negative mood scale, between the non-sport coaching and sport coaching groups of the male respondents. Then from the mean difference angle, the indicated value of 0.963 shows that negative mood scale of the sport coaching group is higher than that of the non-sport coaching group by 3.27%.

In addition, the t-arithmetic of the female respondents is 0.339 which is less than 1.98, the value of the t-table and a very big value of probability significance at 0.736 which is far greater than 0.05 all mean that there is no significant difference in the mood level, as indicated on the negative mood scale, between the sport coaching and non-sport coaching groups of the female respondents as well. A mean difference of 0.752 shows that the negative mood scale of the non-sport coaching group is better than that of the sport coaching group by 2.34%.

IV. DISCUSSION

It is a fact that the psychological factors associated with overtraining syndrome are more difficult to detect than the

physiological ones (10). And we know that in general terms, there are two kinds of measurement, which are objective and subjective. The assessment of one's emotional status is usually measured using the subjective means and both methods of assessing these factors are usually done separately, though most researchers combine both methods with the sole aim of collecting correct and accurate data which they can compare with clarity.

Also as previously stated that the rate at which overtraining syndrome appear is higher in the students of the Faculty of Sport Science compared with those in non-sport faculties. This study considered sport coaching students and as such, achieving and doing well in both the class curriculum and sport activities is vital factor worth considering. In that light, student class activities of the sport coaching students are mostly done in the field and not in the class. This is because an optimal performance is required and to get this, the theoretical aspect of learning should be limited and embrace continuous practice on the field.

More so, before a student can be admitted by the university into the sport science faculty, such students must have the mastery of one of the numerous sports and sometimes must have made some achievements in that particular sports. This suggests that the majority of these students admitted into that faculty are professional athletes. And the high level of physical activities done by these sport coaching students, which include their class lectures as well as the intensive training outside the class and the normal time spend generally by their counterparts not involving in any sport activities, contribute to their possibilities of experiencing the overtraining syndrome. The following are the overtraining indicators that someone with it can experience:

TABLE III. PHYSIOLOGICAL AND PSYCHOLOGICAL INDICATORS OF OVERTRAINING SYNDROME [11]

Physiological	Psychological
<ol style="list-style-type: none"> 1. Higher resting heart rate 2. Changes in normal blood pressure 3. Delayed return to normal heart rate 4. Elevated basal metabolic rate 5. Elevated body temperature 6. Weight loss/excessive thirst 7. Impeded respiration 8. Subcostal aching 9. Bowel disorders 	<ol style="list-style-type: none"> 1. Sleep disturbances 2. Loss of self-confidence 3. Drowsiness and apathy 4. Irritability 5. Emotional and motivational imbalance 6. Excessive, prolonged weariness 7. Lack of appetite (anorexia) 8. Fatigue 9. Depression 10. Anxiety 11. Anger/hostility 12. Confusion

This process of intensified training leading to overtraining is often seen as a continuum (2, 5). And the continuum suggests that increased stress, or overload, results in a disruption of homeostasis and a temporary decrease in function (2, 4). The stress may arise from training, psychological stress or illness in which its resultant acute fatigue can cause a positive adaptation or improvement in performance..

And this is a normal thing for students in the Faculty of Sport Science because their system have a way of adapting, which is a normal body response for them, and this progressive increase in training activities, followed by sufficient recovery, result in better performance and this is the basis of effective training programs. In contrast, if the balance between training stress and adequate recovery is disrupted, there will be an abnormal training response which may lead to a state of overtraining.

Our results indicated that the scale of positive mood in male respondents was better than that of female, and was directly proportional to the negative mood scale data of female that looked higher than that of male. This evident contrast is caused by differences in the physiological and psychological conditions generally between males and females. Physiologic and genetic characteristics are more evident in female adolescents than male adolescents, especially for depressed mood (12). Meanwhile, two studies tested the hypothesis that women are more likely than men to focus on themselves and their mood when in depressed mood, and that this leads them to experience longer periods of depressed mood (13).

Finally, , this study came up with three suggestions for researchers which are highlighted as follows: (i) the BRUMS can be used with greater trust using qualitative methods to explore the nature of emotions and mood states within each student cultural background differences. (ii) objective measurement is required, to make comparisons with subjective measurements so as to obtain a valid data, and (iii) the future researchers should investigate the emotional states experienced by sport faculty student; before, during and after learning program in one semester.

V. CONCLUSION

Changes in the mood state may be a useful indicator of overtraining in a physically active university student; however, the need to combine mood disturbances with objective performance measurement is of great necessity.

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