

THE EFFECT OF THERAPEUTIC RECREATION ACTIVITIES ON STUDENTS' APPRAISALS OF THEIR EMOTIONS DURING ACADEMICALLY DEMANDING TIMES

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ABSTRACT

Adolescent and young adult university students' decreasing physical activity levels impact considerably on their psychological stress levels. Acute and long-term bouts of exercise can reduce psychological stress (Taylor, 2000). In this study, the Leisure-time Exercise Questionnaire and the Positive Affect Negative Affect Scale were used to determine students' physical activity levels and emotional states before their first and second test weeks, in order to ascertain the effect of therapeutic recreational activities on their appraisals of their feelings and emotions during academically demanding times. The recreational therapy was presented between these test weeks. Results indicated that both the physical activity levels and the emotional state of the experimental group improved. Future studies could include determining which recreation activity has the greatest therapeutic effect while better controlling participants in both groups. In view of its potential value for relieving stress, therapeutic recreation could be used as a technique in relieving stress prior to tests and examinations.

Key words: students, university, stress, emotions, recreation, physical activity

1. INTRODUCTION

Participation in physical activity decreases over the human life span. By age 21, only 42% of males and 30% of females report regularly participating in vigorous physical activity. The steepest decline in physical activity occurs during adolescence (ages 15–18) and young adulthood (ages 20–25). Across age groups, participation seems to remain more stable in regular moderate physical activity (21,1% high school students, 19,5% college students and 19,7% adults) than in vigorous physical activity. Only 46% of young adults aged 18–25 years continue an active lifestyle beyond secondary school.

Health beliefs and practices are still evolving during late adolescence, therefore colleges and universities can play a crucial role in implementing and supporting exercise behaviour that facilitates good health throughout life (Wallace *et al.*, 2000).

Psychological stress influences many facets of human functioning. Stress and post-traumatic stress disorder are strongly associated with decreased physical health, psychosocial and occupational functioning, and quality of life of both civilian and military populations.

Interest amongst researchers has grown because there is substantial evidence suggesting that acute bouts of exercise and long-term exercise reduce the incidence of stress emotions like anxiety (Taylor, 2000).

2. PSYCHOLOGICAL STRESS

Stress, the “wear and tear” the body experiences as it adjusts to the ever-changing environment, can be conceptualised as any process or event that requires excessive adaptation from an organism in response to some stressor (Cohen, Kessler & Gordon, 1995), and has physical and emotional effects causing positive and negative mood states.

One in five people experiences depression, a serious medical condition of the mind and body, within a lifetime. For college students, this painful, disruptive, and debilitating experience interferes significantly with day-to-day activities. Students may become academically, socially or romantically impaired (Lopez, 2000). Researchers and practitioners indicate that, for university students, academic, financial and lifestyle management stressors (Ross, Neibling & Heckert, 1999) create the most significant impairments.

Recent research also suggests that exercise, which improves both physical and psychological health, may be used as a coping mechanism to manage stress (Ingledeew & McDonagh, 1998; Pinto, Maruyama, Engebretson & Thebarga, 1998; Scully, Kremer, Meade, Graham & Dedgeon, 1998). Exercise and health behaviour are important components of psychological well-being. Health behaviour is any behaviour that involves health as a result, not necessarily as a primary goal (Ingledeew, Hardy, Cooper & Jemal, 1996). The above research found that exercise not only improves physical health but also decreases depression and anxiety and improves mood state, self-esteem and body image.

3. THERAPEUTIC RECREATION AND STRESS

Therapeutic recreation engages people in planned recreation and similar experiences to improve functioning, health and well-being, and quality of life, while focusing on the person as a whole and the changes required in the living environment (Daly & Kunstler, 2006).

The role of the therapeutic recreation specialist or recreation therapist as a member of a treatment team is the therapeutic application of activities (Kremer, Malkin & Benschhoff, 1995), thus promoting the recovery process by developing and implementing physical activities that provide the opportunity for improvement of both physiological and psychological levels of stress in university students. Therapeutic recreation services play an essential part in fulfilling a person's needs, taking into account the goal of protection and promotion of health (McGhee, Groff & Russoniello, 2005).

Research indicates that students engaged in recreation therapy such as adventure therapy, anger management therapy, aquatic therapy, expressive arts as therapeutic media, leisure education therapy and stress management therapy are better equipped to deal with challenge appraisals during examinations (Kuz'menko, 2002).

Guz'kowska (2005) maintains that physical fitness may be an important resource in helping to cope with stress. Exercise also shows increasing potential for the regulation of moods such as depression and anxiety caused by high levels of stress (Petruzello, Motl & Landow, 2007). Both sources mentioned above refer to exercise provided by the therapeutic recreation activities previously mentioned.

There is also substantial evidence that teaching people to cope with stress (whether psychological or physical) changes individuals' breathing patterns, which significantly reduces stress levels (McComb, Tacon, Randolph & Caldera, 2004).

In terms of cognition, therapeutic recreation makes a valuable contribution. In this regard, Coyle, Kinney, Riley and Shank (1991) have stated in previous research that therapeutic recreation increases mental alertness and enhances attention span, memory skills, problem-solving skills, organisational skills, decision-making skills and independence to make choices.

It is important to note that physical activity has often been recommended as a strategy to manage stress (and consequently to improve quality of life), but associations between exercise and stress have not been studied intensively in student/college populations (Nguyen-Michel, Unger, Hamilton & Spruijt-Metz, 2005).

4. PROBLEM STATEMENT

The problem to be addressed is that physical activity decreases in late adolescence and early adulthood when stress, anxiety and depression are prevalent. The study thus aimed to determine whether participation in therapeutic recreation activities would have a positive effect on stress management, with positive emotions as a result.

The hypothesis is that therapeutic recreation, as an intervention strategy, will reduce the stress levels, and therefore the negative affect experienced by university students, during academically demanding and stressful times.

5. AIM OF THE STUDY

The aim of this study was to determine:

- the physical activity level of the students under study by way of the Leisure-Time Exercise Questionnaire (LTEQ);
- the feelings and emotions of students under study by way of the Positive Affect Negative Affect Scale (PANAS); and
- whether the intervention can be associated with increased positive and decreased negative affect for university students during academically demanding times.

6. RESEARCH METHOD

6.1 Research design

The comparison group pre-test–post-test design involves the experimental group and the comparison group both receiving the pre-test and the post-test, while the comparison group does not receive the treatment (Fouché & De Vos, 2006). When a comparison group not receiving treatment is added to what otherwise would be a one-group pre-test–post-test design, threats to validity are greatly reduced. Since the groups are not equivalent, there is still the possibility of selection (observed changes are due to selection of subjects, such as working with more motivated volunteers in a treatment group).

Respondents completed a pre-test, the Leisure-Time Exercise Questionnaire, and the Positive Affect Negative Affect Scale (PANAS) prior to the recreational therapy. The intervention was conducted over approximately three weeks. After the intervention strategy, a post-test was given to determine the effect of the recreation therapy.

6.2 Sample

One hundred and twenty-three (123) respondents participated in the pre-test, and one hundred and forty-five (145) in the post-test of the interdepartmental study, consisting of students from the Human Movement Sciences and the Social Work and Criminology Departments. The experimental group in the pre-test consisted of 46 students, whereas in the post-test it consisted of 48 students. The pre-test control group consisted of 77 students and the post-test control group of 97 students. The researchers assessed the students in terms of their emotions and physical activity levels prior to their first test week, and again prior to their second test week, with the recreational therapy presented between these test weeks. The control group did not participate in the recreational therapy.

6.3 Ethical aspects

The Student Dean of the University of Pretoria and the Research Proposal and Ethics Committee of the Faculty of Humanities approved the research. Students who participated in the study signed a letter of informed consent.

6.4 Measuring instruments

The research instruments used were standardised, valid and reliable questionnaires, namely:

6.4.1 The Leisure-time Exercise Questionnaire (LTEQ)

The LTEQ, a reliable, valid measure of exercise in adults (Giacobbi, Tuccitto & Frye, 2005) designed by Godin and Shephard in 1985, uses a three-item scale requiring participants to rate how often they engage in mild, moderate and strenuous leisure-time exercise during a typical week. Researchers can calculate a metabolic equivalent (MET) score (the rate of oxygen consumption or the amount of energy expended for a given time period) by weighting the intensity level and summing for a total score using the following formula: MET=3 (mild), +5 (moderate), and +9 (strenuous). The rate of oxygen consumption during rest is equivalent to one MET. The number of METs increases with subsequent increases in exercise intensity. Current recommendations are for individuals to expend energy at a rate of six to eight METs for three days a week for 30 minutes or longer.

6.4.2 The Positive Affect Negative Affect Scale (PANAS)

The PANAS is a valid and reliable measure of mood states and consists of two 10-item scales requesting participants to rate specific feelings and emotions associated with positive affect (e.g. enthusiasm) and negative affect (e.g. afraid) experienced during a given time frame (Giacobbi *et al.*, 2005). Participants rate their emotions of the previous 24 hours according to a scale ranging from "Very slightly or not at all" to "Extremely".

7. DATA COLLECTION

The data was captured in Microsoft Office Excel and converted to SPSS in order to do the analysis. The following statistical data analysis procedures were used:

7.1 Descriptive statistics

Descriptive statistics primarily aim at describing the data. The mean, standard deviation, minimum and maximum scores for the Leisure Time Exercise Questionnaire (LTEQ) will be described. Respondents' answers to the biographical and PANAS questionnaires will reflect in frequencies.

7.2 Inferential statistics

Test hypotheses about differences in populations were based on measurements made on samples of subjects (Tabachnick & Fidell, 1996).

7.3 Friedman's rank test for k correlated samples

This test is the distribution free analogue of the one-way repeated measures analysis of variance. "It is a test on the null hypothesis that the scores of each treatment were drawn from identical populations, and it is especially sensitive to population differences in central tendency" (Howell, 1992:624). It was used to determine whether statistically significant differences existed between the measurements obtained at the pre-test and two consecutive post-tests.

8. INTERVENTION

The entire process consisted of the following steps:

1. A pre-test using the LTEQ and the PANAS questionnaires was administered from 30 July 2007 to 7 August 2007. Students completed these questionnaires during lecture time at the University of Pretoria.
2. Intervention programmes consisting of adventure therapy, anger management therapy, aquatic therapy, expressive arts as therapeutic media, leisure education therapy and stress management therapy were presented at the University of Pretoria's sport grounds, from 27 August to 21 September 2007.
3. The researchers administered a post-test using the LTEQ and the PANAS questionnaires on 5 October 2007. During the post-test a control group and experimental group were formed. Respondents who participated in the recreational therapy represented the experimental group, whereas the respondents that did not participate represented the control group.

The outcome of the intervention was thus assessed by using the qualitative pre-test and post-test to measure the impact of the intervention programme on the stress levels of the respondents.

9. RESEARCH RESULTS AND DISCUSSION

The results of the study are presented and discussed under the following headings:

9.1 Demographic data

9.1.1 Gender representation

Females represented the largest portion of both the experimental and control groups. In the experimental group, 67,4% (N=46) of the students were female and 22,6% (N=46) male. In the control group, 71,4% (N=77) of the students were female and 18,6% (N=77) male.

9.1.2 Language

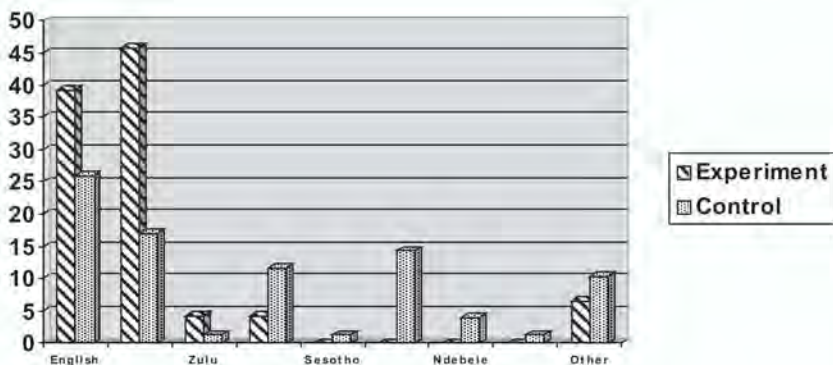


Figure 1: Language of respondents

The majority of participants were Afrikaans- or English-speaking: Experimental group: 45,7% (N=46) Afrikaans-speaking; 39,1% (N=46) English-speaking.

Control group: 16,9% (N=77) Afrikaans-speaking; 26% (N=77) English-speaking. The reason for these numbers could be that participation in this study was voluntary and that the recreational therapy was presented at the sports grounds, where Human Movement Sciences students, the majority of them Afrikaans speaking, attend classes.

9.2 Leisure-time exercise assessment of respondents

9.2.1 Leisure-time exercise levels

Leisure-time Exercise Level Pretest
(N=123)

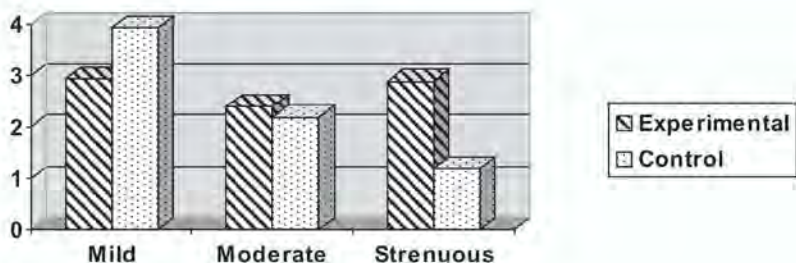
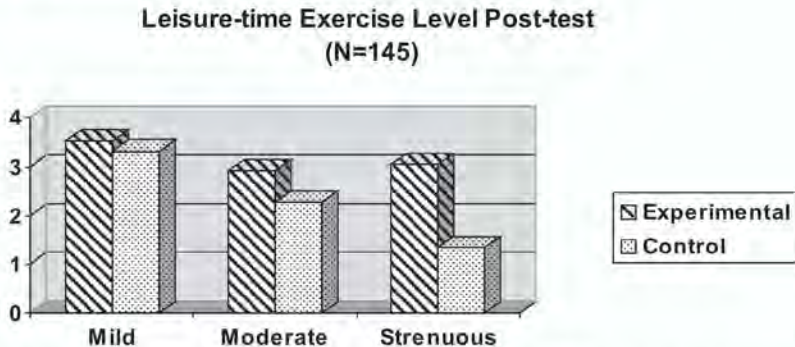


Figure 2: Leisure-time exercise level pre-test

Figure 3: Leisure-time exercise level post-test



Considering the pre-test, it seems that the control group participated more in mild exercise, i.e. 3,9% (N=77) than the experimental group, i.e. 2,9% (N=46). The moderate exercise level was similar for both the control group: 2,2% (N=77) and the experimental group: 2,1% (N=46). In terms of strenuous exercise, the experimental group engaged in far more exercise: 2,9% (N=46), compared to the control group: 1,1% (N=77).

A comparison between Figures 2 and 3 indicates that during the post-test the experimental group dramatically increased mild exercise levels after intervention: from 2,9% (N=46) to 3,4% (N=46). The control group's participation declined from 3,9% (N=77) to 3,1% (N=77). At the moderate exercise level, the experimental group improved considerably: from 2,2% (N=46) to 2,9% (N=46), whereas the control group remained at 2,2% (N=77). The experimental group also showed a slight improvement at the strenuous level, increasing to 3,1% (N=46), whereas the control group remained consistent, increasing to only 1,2% (N=77).

9.2.2 Descriptive statistics of the leisure-time exercise sets of results

Participation in leisure-time exercise

The following table indicates the descriptive statistics of the respondents' leisure-time exercise activity prior to the intervention (pre-test) and post intervention (post-test).

Participation in recreation programme		N	Minimum	Maximum	Mean	Std. deviation
Experimental group			Hours	Hours		
Pre-test	Leisure-time exercise – strenuous pre-test	46	0	9	2,89	2,046
	Leisure-time exercise – moderate pre-test	46	0	10	2,41	2,353
	Leisure-time exercise – mild pre-test	46	0	9	2,93	2,435
Post-test	Leisure-time exercise post – strenuous	48	0	11	3,04	2,713
	Leisure-time exercise post – moderate	48	0	10	2,92	2,550
	Leisure-time exercise post – mild	48	0	13	3,52	3,275
	Valid N (list wise)	46				
Control group			Hours	Hours		
Pretest	Leisure-time exercise – strenuous pre-test	77	0	7	1,18	1,537
	Leisure-time exercise – moderate pre-test	77	0	10	2,19	2,271
	Leisure-time exercise – mild pre-test	77	0	10	3,92	2,780
Post-test	Leisure-time exercise post – strenuous	97	0	10	1,34	1,887
	Leisure-time exercise post – moderate	97	0	10	2,27	2,404
	Leisure-time exercise post – mild	97	0	12	3,31	3,039
	Valid N (list wise)	77				

Table 1: Descriptive statistics

The experimental group's leisure time exercise activity improved on mild, moderate and strenuous levels. During the pre-test, the experimental group's students engaged in an average of 2,89 hours of strenuous activity; the control group averaged 1,18 hours of strenuous activity.

The experimental group engaged in an average of 2,41 hours of moderate exercise, compared to the control group's average of 2,19 hours. In terms of mild exercise, the experimental group engaged in an average of 2,93 hours, compared to the control group's average of 3,92 hours.

During the post-test, the experimental group improved to an average of 3,04 hours of strenuous activity, compared to the control group's average of 1,34 hours. Furthermore, the moderate exercise level of the experimental group improved to an average of 2,92 hours after the intervention, as compared to the control group's 2,27 hours. The mild exercise levels of the experimental group increased to an average of 3,52 hours; those of the control group decreased to an average of 3,31 hours.

The therapeutic recreation intervention focused on strenuous physical activity; not on mild physical activity. As mentioned above, the experimental group's participation improved considerably in the mild exercise category, whereas the control group's participation decreased. Behavioural interventions can thus modify physical activity (Wallace *et al.*, 2000). The results indicate that therapeutic recreation as an intervention strategy successfully increases the number of hours university students engage in physical activity during academically demanding times.

9.3 Emotions of the respondents after intervention

9.3.1 Positive emotions

Table 2: Positive emotions

Emotion	Experimental g-Group pre-test (N=46)	Experimental group post-test (N=46)	Control group pre-test (N=77)	Control group post-test (N=77)
Interested	6,5%	14,6%	13%	11,9%
Excited	4,3%	18,8%	6,5%	11,7%
Inspired	10,9%	16,7%	11,7%	12,4%
Determined	8,7%	22,9%	8,9%	15,2%
Attentive	39,1%	39,6%	36,4%	26,8%
Alert	26,1%	33,3%	20,8%	22,7%
Enthusiastic	10,9%	43,8%	17,9%	37,9%
Proud	21,7%	52,1%	26%	40,7%
Strong	34,8%	41,7%	28,6%	27,8%

The results can be expressed as follows according to the positive emotions: The results indicated the following:

Interest: The experimental group improved by 8,1% to 14,6% after the recreational therapy; the control group decreased from 13% to 11,9%.

Excited: Both the experimental and control groups improved: the experimental group by 14,5%, compared to only 5,2% of the control group.

Inspired: The experimental group improved to 16,7%; the control group was at 12,4% during the post-test.

Determined: The experimental group improved from 8,7% to 22,9%; the control group only improved from 8,9% to 15,2%.

Attentive: The experimental group improved from 39,1% to 39,6%, whereas the control group decreased from 36,4% to 26,8%.

Alert: The experimental group improved by 7,2% to 33,3% as compared to a 1,9% increase to 22,7% for the control group.

Enthusiastic: The experimental group improved to 43,8% after intervention, whereas the control group was at 37,9% during the post-test.

Proud: The experimental group improved by 30,4% to 52,1% as compared to the control group, that only improved by 14,7% to 40,7%.

Strong: The experimental group improved from 34,8% to 41,7% and the control group decreased from 28,6% to 27,8%.

The above-mentioned results, supported by the study of Kuz'menko (2002), indicate that the positive emotions of the respondents in the experimental group improved considerably when they participated in the recreational therapy. The control group showed a small difference, with one exception, namely the "proud" emotion that increased from 26% to 40%. Accordingly, the recreation therapy was successful in alleviating stress in university students during academically demanding and stressful times.

9.3.2 Negative emotions

Table 3: Results of negative emotions

Emotion	Experimental group pre-test (N=46)	Experimental group post-test (N=46)	Control group pre-test (N=77)	Control group post-test (N=77)
Nervous	41,3%	26,1%	22,1%	28,9%
Jittery	6,5%	4,2%	1,3%	5,2%
Distressed	26,1%	25%	26,8%	27,6%
Upset	26,1%	25%	16,3%	19,3%
Guilty	28,3%	25%	20,8%	21,6%
Irritable	41,3%	26,1%	22,1%	28,9%
Ashamed	6,5%	4,2%	1,3%	5,2%
Afraid	26,1%	25%	26,8%	27,6%
Hostile	26,1%	25%	16,3%	19,3%
Scared	28,3%	25%	20,8%	21,6%

The results indicated the following according to the negative emotions:

Nervous: The experimental group was less nervous after intervention, decreasing from 41,3% to 26,1%, whereas the control group was more nervous, increasing from 22,1% to 28,9%.

Jittery: The experimental group was less jittery, indicating a 2,3% decrease to 4,2% after intervention, as compared to the control group that increased by 3,9% to a total of 5,2%.

Upset: The experimental group decreased from 26,1% to 25%, whereas the control group increased from 16,3% to 19,3%.

Guilty: The experimental group decreased from 28,3% to 25%, whereas the control group increased from 20,8% to 21,6%.

Irritable: The experimental group decreased from 41,3% to 26,1%; the control group increased from 22,1% to 28,9%.

Ashamed: The experimental group decreased from 6,5% to 4,2%, compared to the control group's increase from 1,3% to 5,2%.

Afraid: The experimental group decreased from 26,1% to 25%, whereas the control group increased from 26,8% to 27,6%.

Hostile: The experimental group decreased from 26,1% to 25%; the control group increased from 16,3% to 19,3%.

Scared: The experimental group decreased from 28,3% to 25%, whereas the control group increased from 20,8% to 21,6%.

The negative emotions of the experimental group showed few differences, with the exception of two negative emotions, namely "irritable" and "nervous" that decreased from 41,3% to 26,1%. The control group had the opposite results. All the negative emotions increased at the post-test. The emotions that increased the most were "jittery" from 1,3% to 5,2%, "nervous" from 22,1% to 28,9% and "irritable" from 22,1% to 28,9%. The results indicate the effect of examinations and tests on students' emotions. Students may become disruptive and debilitated because of stress and depression (Lopez, 2000).

The results indicate that therapeutic recreation was successful in these categories to improve the mood state of the students under study. Thus, there is clear evidence of the potential of therapeutic recreation, as an intervention strategy, to decrease stress and increase the physical activity levels of university students during times of extreme stress. In addition, long-term exercise reduces incidences of stress emotions such as anxiety (Taylor, 2000).

10. CONCLUSION AND RECOMMENDATIONS

The hypothesis of this study was that therapeutic recreation, as an intervention strategy, would reduce the stress levels and therefore the negative affect experienced by university students during academically demanding and stressful times. Considering the above results, the hypothesis of this study has been clearly supported and confirmed in all the tested areas.

The results of the Leisure-time Exercise Questionnaire indicated that the experimental group showed a significant increase on all activity levels, whether mild, moderate or strenuous. The control group showed either similar results in the pre-tests and post-tests, or a decline.

This indicates that the therapeutic recreation intervention led to an increase in physical activities of the experimental group and thus to improved healthy behaviour. This is important, as therapeutic recreation can generate active lifestyles within the student community, counteracting a sedentary and unhealthy life, thus improving students' quality of life.

The research results indicate that the therapeutic recreation intervention enhanced positive mood states and decreased negative mood states during academically demanding times. This is vital, as students will now adopt a healthier and more positive attitude towards the demands, which may improve their academic performance.

The students in the experimental group experienced reduced stress levels and negative emotions, whereas positive mood states were enhanced in most cases. This indicates that the recreational therapy was successful in achieving the goal of the study. The hypothesis of this study has consequently been confirmed.

Recommendations for future studies include the following:

- Gender representation should be equal in order to correlate gender representation and stress experienced.
- A future study in this regard could attempt to determine which therapeutic recreation activity is the most successful for the target group.
- The value of therapeutic recreation activities in reducing stress in other potentially stressful situations could be assessed.
- The academic results of the students prior to and after intervention could be compared to determine the effect of therapeutic recreation on their academic performance.

Recommendations regarding the results of this study include the following:

- Health and wellness workers at higher education institutions could consider therapeutic recreation activities to help create an equitable environment for students through the provision of social, physical and psychological care, with the view to ensuring academic success. Programmes focusing on stress management and time management, using therapeutic recreation activities, should be considered to:

- improve students' levels of satisfaction and their mood states;
 - create a culture of active and healthy living and a positive attitude; and
 - improve students' academic performance.
- According to Aarnio (2003), the challenge is to motivate inactive learners to become involved in physical activity. Health and wellness workers at higher education institutions should launch campaigns to motivate students in this regard.
 - Health science and social science faculties/departments at higher education institutions could develop and implement interdisciplinary programmes to promote exercise and recreation as ways to relieve stress and improve the well-being of students.

Finally, the results of this study indicate that therapeutic recreation as an intervention during university students' academically demanding times can be used to improve their physical, mental and emotional well-being. Universities should consider this study, together with the recommendations made, in order to improve their students' levels of satisfaction and their mood states, create a culture of active and healthy living and a positive attitude and, finally, to attempt to improve the grades of the students.

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