ABSTRACT

Aims and objectives: To study effect of short-term movement therapy on levels of academic stress in female students studying in final year of physiotherapy.

Methodology: A convenient sample of 50 final year female physiotherapy students was divided into two groups—group 1 (experimental group) and group 2 (control group) after obtaining informed consent. Academic stress level was measured using students academic stress scale (SASS) in both groups. Group 1 underwent 1 month training with movement therapy, three times per week for a duration of 45 minutes per session which included 10 minutes of stretching warm up exercises, 30 minutes of conditioning phase of free style dance movements at 75 to 80% age related heart rate max and 5 minutes of passive cool down. The control group was instructed to continue their routine activities. Students Academic Stress Scale was scored in both the groups after 1 month of training and thereafter movement therapy was discontinued. Students were scored again on SASS after 1 month of discontinuation of movement therapy.

Results: Group 1 demonstrated statistically significant reduction (p = 0) in stress level after 1 month of movement therapy vs group 2, which did not show any change. In group I, after discontinuation of therapy, stress levels increased again though they remained lower than basal values. Group 2 maintained a fairly constant SASS score throughout the time duration.

Conclusion: Movement therapy helped to reduce stress levels in students. There was some carry over effect after discontinuation of therapy.

Keywords: Movement therapy, Stress, Students academic stress scale, Physiotherapy students.


Source of support: Nil

Conflict of interest: None

INTRODUCTION

Stress is defined as ‘the specific response of the body to any demand on it’. Setve described stress saying that it is a biopsychosocial model that refers to the consequence of failure of an organism to respond adequately to mental, emotional or physical demands, whether actual or imagined.

There are innumerable stress factors since different individuals react differently to same stress conditions. College students experience high stress levels at predictable times each semester due to academic commitments, financial pressures, lack of time management skills, high parental expectations, staying in hostels, peer pressure, vastness of syllabus and lack of facilities for entertainment. When stress is perceived negatively or becomes excessive, students experience physical and psychological impairments.

Studies have shown that students all over the world across all healthcare disciplines perceive stress equally as so is with physiotherapy students. Walsh et al in a questionnaire based study demonstrated that more than a quarter of physiotherapy students showed significant psychological morbidity with academic and personal issues being of highest causative concerns. Students adopt various coping strategies to try to maintain their homeostasis like positive reframing, planning, acceptance, active coping and self distraction and some may even resort to hazardous behaviors like smoking, substance abuse, eating disorders and cyber addiction. However, higher levels of psychological morbidity would warrant the need for additional remedial measures like manipulation of curricular factors. Researchers have studied effect of yoga, meditation, psychological counseling and multiple intervention plans in stress management. The study was initiated to observe whether addition of external factors like movement therapy would help to relieve the internal stress situation created in students minds as regular physical activity is said to be effective in terms of defending against harmful effects of stress and building resilience.

METHODOLOGY

The study was carried out at MGM School of Physiotherapy, Navi Mumbai, after obtaining local ethical committee...
clearance. Fifty final year female physiotherapy students were invited to participate in the study. Twenty-five students agreed to participate in the 1 month training and were included in group 1—experimental group which underwent movement therapy (MT), the other twenty five were enrolled in group 2—control group which did not participate in MT and was instructed to carry on with their routine activities. None of the students presented with any cardiovascular, respiratory, musculoskeletal, neurological malignant, surgical conditions.

Academic stress was measured using students academic stress scale (SASS score 1). It is an instrument that measures students’ affective, behavioral, physiological and cognitive responses to stress during their attempt to maintain homeostasis. Participants rated how much of the time they experienced symptoms on a 5-point Likert scale with anchors being—(1) none of the time, (2) a little of the time, (3) some of the time, (4) most of the time, (5) all of the time. Items were scored and summed for total final SASS score. Higher scores indicated a greater stress response.\textsuperscript{15}

Group 1 underwent MT three times per week for 1 month. The duration of each session was 45 minutes, which included a 10 min warm-up that consisted of upper and lower limb movements with balance and stretching exercises. This was followed by a 30 minutes conditioning phase of free style dance movements at an intensity of at 75 to 80% HR max which was confirmed by Polar Heart Rate monitor. Sessions were conducted by a student trained in dance. Students of both groups were scored on SASS after group 1 completed their 1 month of MT (SASS score 2). MT was discontinued. Students of both groups were scored again on SASS 1 month after discontinuation of MT (SASS score 3).

**STATISTICAL ANALYSIS**

Statistical package for the social sciences 16 was used for data analysis. Descriptive analysis was performed for demographic features of participants namely—age, height, weight and the body mass index (Table 1). The clinical data were analyzed and means and standard deviations were assessed. Intergroup comparisons were done using analysis of variance (ANOVA) and interclass comparisons were done using post hoc studies (Tables 2 and 3).

**RESULTS**

Demographic features of the two groups were comparable with mean age being 20.8 in group\textsuperscript{1} and 21.1 in group\textsuperscript{2}. Height, weight and BMI were also comparable, as seen in Table 1. SASS score 1 (basal) of the two groups were comparable with group 1 having a score of 124.8 and group 2 having a score of 124.1 (p = 0.93) as seen in Table 2. The SASS score 2 (after 1 month of training of group 1 with MT) of group 1 showed a statistically significant fall (p = 0.000) as opposed to the SASS score of group 2 which demonstrated a small rise. The SASS score 3 (i.e. 1 month after cessation of MT) of group 1 increased as compared to SASS score 2 (p = 0.16) but did not reach the level of SASS score 1. Group 2 showed a relatively constant SASS score with slight variations, as seen in Table 2. Intragroup comparisons using ANOVA revealed significant differences in group 1 between the SASS score 1 and 2 and SASS score 2 and 3 but not between SASS score 1 and 3. Intragroup comparisons of group 2 did not reveal significant difference between the 3 scores.

**DISCUSSION**

In the present study, students in the final year of physiotherapy bachelors degree program were the participants. Demographic features of the participants were similar to those of other studies of a similar nature where stress levels of students in different healthcare facilities have been studied\textsuperscript{12,15}. The fact that physiotherapy students too are exposed to a highly competitive environment where stressors may be academic, financial, time or health related

\begin{table}
\centering
\caption{Comparison of SASS between groups I and II}
\begin{tabular}{|l|l|l|l|l|}
\hline
Groups & Level & f-value & p-value using ANOVA \\
\hline
\hline
1 & 1 & 2 & 26.20 & 0.00* \\
2 & 3 & 0.00* & \\
1 & 3 & 0.51 & \\
2 & 1 & 2 & 0.18 & 0.84 \\
2 & 3 & 0.84 & \\
1 & 3 & 0.84 & \\
\hline
\end{tabular}
\end{table}

*Level of significance set at p < 0.05; level 1: basal SASS; level 2: SASS after 1 month; level 3: SASS after 1 month of stopping MT of group 1

\begin{table}
\centering
\caption{Comparison of SASS of groups 1 and 2 at three levels}
\begin{tabular}{|l|l|l|l|}
\hline
Groups & Level & f-value & p-value using ANOVA \\
\hline
\hline
1 & 1 & 2 & 26.20 & 0.00* \\
2 & 3 & 0.00* & \\
1 & 3 & 0.51 & \\
2 & 1 & 2 & 0.18 & 0.84 \\
2 & 3 & 0.84 & \\
1 & 3 & 0.84 & \\
\hline
\end{tabular}
\end{table}

*Level of significance set at p < 0.05; level 1: basal SASS; level 2: SASS after 1 month; level 3: SASS after 1 month of stopping MT of group 1
and self-imposed or personal in nature led us to measure stress levels on the SASS scale.

Convenient sampling was used to divide participants into two groups after obtaining informed consent. Group 1 underwent movement therapy in addition to their routine activities and group 2 was instructed to continue their routine activities of academic and personal nature. Researchers have studied different techniques like integrated mind body training, yoga and meditation to try to reduce stress. Effect of physical activity has been studied for its various effects like improvement in fitness level, level of skill, improvement in general mental health hence we proposed to study the effect of simple movement related therapy on stress levels in students. The advantage of movement therapy was that it was economical, easy to follow, did not require any special training and was enjoyable for the students.

The possible benefits obtained after performing the therapy was reflected as a reduction in SASS score measured after 1 month of training in group 1 as opposed to group 2 whose SASS score did not show any fall but in fact showed a small insignificant rise. It is proposed that physical activity releases beta endorphins into the system that induces a feeling of calmness, satisfaction and euphoria.\textsuperscript{11,12} Studies have also shown less cortisol production and improved emotional status in students. Just as yoga was shown to have a buffering effect on stress induced decrease in cellular immunity, creating an optimized secretion of cortisol and restoring autonomic reflex regulatory mechanisms\textsuperscript{11,12} increased physical activity in the form of dance therapy could also offer similar benefits.

Dance has proved to be effective in reduction of depression in the elderly.\textsuperscript{16} Qi dance, hath yoga was effective in reducing stress using the perceived stress scale PSS.\textsuperscript{17,18} Mood alterations after aerobics and hip hop dancing\textsuperscript{19} and movement based courses like Pilates, Taijiquan, Gryrokinesis in students showed better scores and mindfulness subscales.\textsuperscript{20}

In the current study too, the experimental group showed significant improvement in the student’s academic stress scale score which has been shown to be reliable and valid in identifying problems in students affective, behavioral, physiological and cognitive responses to stress as against other tools like academic stress scale, student problem inventory, depression, anxiety and stress scale DASS. Reduction in stress levels could be attributed to movement therapy as all other activities were common between the two groups and there was an increase in stress level after movement therapy was stopped. The control group did not show any change in SASS scores and in fact showed a small rise.

Possible effect of MT including free style dance in reducing stress could be due to enhanced self awareness, a positive sense of well being.\textsuperscript{19, 21, 22} Movement therapy focuses the mind and offers distraction from external and internal stressors which causes individuals to ruminate over negative thoughts. However, the effect was seen to be transient as after discontinuation of MT the SASS score of group 1 showed a rise as the students probably experienced increased stress again after cessation of therapy as they had no leisure distractions.

There was some carry over effect of therapy as the SASS score of group 1 still remained lower than that of group 2 even after 1 month of discontinuation of therapy.

Analysis of other objective measures of stress reduction like biomarkers and cortisol levels that could have further revealed the effect of movement therapy on body homeostasis was not possible which is a limitation of the study.

CONCLUSION
One month of movement therapy showed an improvement in the SASS score measured in final year physiotherapy students as opposed to controls who went about their routine activities. The decrease in the SASS score was transient as after discontinuation of therapy the SASS score showed a rise. Controls did not show significant changes in SASS score. Some carry over effect of therapy was seen in group 1.

It would also be desirable to study the effect of long-term movement therapy in ameliorating the effect of stress in physiotherapy students and if it has any connotations on academic performance as it would then help to answer the question that should compulsory physical activity be a part of all academic programs. The possible merits of movement therapy in reducing stress levels in highly demanding academic programs could be looked upon to be a part of the curriculum, whereby not much time or money would be invested to obtain positive coping strategies and distraction from stressors as opposed to negative coping strategies like denial, behavioral disengagement and psychological morbidity in students.

REFERENCES


