



RESEARCH ARTICLE

COMPARATIVE STUDY ON EFFECTIVENESS OF TAICHI CHUAN AND MINDFULNESS MEDITATION ON STRESS AND QUALITY OF SLEEP AMONG HIGH SCHOOL STUDENTS AT SELECTED SCHOOLS, KANYAKUMARI DISTRICT

Anandhakalyani, M., Dr. N. Ganapathy and *Dr. P. Padmavathi

Dhanvantri College of Nursing, Ganapathypuram, No : 1 Ranganoor Road, Muniyappan Kovil Via Pallakkapalayam (PO), Namakkal (Dt) 637303

ARTICLE INFO

Article History:

Received 04th April, 2017
Received in revised form
20th May, 2017
Accepted 27th June, 2017
Published online 31st July, 2017

Key words:

Meditation,
Kanyakumari ,
Experimental group.

ABSTRACT

Objectives: Evaluate the effectiveness of taichi chuan and mindfulness meditation on stress and quality of sleep among high school students of kanyakumari district.

Methods: True experimental design was adopted. Simple random sampling technique was used to select the sample. Totally 80 samples, out of which 40 were experimental group I and 40 were experimental group II. Taichi Chuan was taught for experimental group I and Mindfulness Meditation was taught for experimental group II for weeks. The data were gathered and analyzed by descriptive and inferential statistical method.

Results: In experimental group I, 55% were having no stress and 45% were having mild stress, whereas in experimental group II, 35% were having no stress and 65% were having mild stress. In quality of sleep, experimental group I, 65% were having good quality of sleep and 35% were having fair quality of sleep, whereas in experimental group II, 95% were having good quality of sleep and 5% have fair quality of sleep. The overall mean score (11.28 ± 6.47) which is 28.19% in experimental group I whereas in experimental group II the mean score (10.78 ± 0.37) which is 26.94%. Paired t test value was 3.26 and 2.65 in both the groups. It seems that Tai Chi Chuan and Mindfulness Meditation were most effective in reducing non academic stress than academic stress among High school children. The Chi-Square test result shows that there is no significant association between high school children with demographic variables. Further research is required to determine the effectiveness of taichi chuan and mindfulness meditation with large samples and to identify their underlying mechanism.

Copyright©2017, Anandhakalyani et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Anandhakalyani, M., Dr. N. Ganapathy and Dr. P. Padmavathi, 2017. "Comparative study on effectiveness of Taichi chuan and mindfulness meditation on stress and quality of sleep among high school students at selected schools, Kanyakumari district", *International Journal of Current Research*, 9. (07). 54795-54799.

INTRODUCTION

"It is easier to build strong children than to repair broken men" Children represent the future, and ensuring their healthy growth and development ought to be a prime concern of all societies. Biologically, a child is generally a human between the stages of birth to puberty. Society began to relate the child not as a miniature adult but as a person of a lower level of maturity needing adult protection, love and nurturing. Learning happens in children through observing, experimenting and communicating with others. Adults supervise and support the developmental process of the child, which lead to the child's autonomy. Stress is the consequence of failure of an organism-human or animal to respond appropriately to emotional or physical threats, weather actual or imagined. It is a major

health hazard of the modern world affecting all people irrespective of age, gender, education, occupation, domiciliary status, finance, religion, race ethnicity and nationality. Stressors range from school to friends, work and family. And teens aren't always using healthy methods to cope, according to the latest finding by the American Psychological Association. Findings on more than 1,000 teens and almost 2,000 adults suggest that unhealthy behaviors associated with stress may start early and continue through adulthood. Stress is the body's natural response to challenges. When a student experiences high levels of stress or chronic stress, regardless of her age or grade, it can interfere with her ability to learn, memorize, and earn good grades as well as lead to poor sleep habits which in turn affects physical, emotional and mental health. Sleep is an integrated part of human health and life and is crucial for learning, performance, and physical and mental health. There has been an increased awareness of insufficient and/or poor quality sleep among adolescents. In

*Corresponding author: Dr. P. Padmavathi,
Dhanvantri College of Nursing, Ganapathypuram, No : 1 Ranganoor Road, Muniyappan Kovil Via Pallakkapalayam (PO), Namakkal (Dt) 637303

general, adolescents prefer to retire and rise late, especially when their melatonin release is delayed during puberty. This preference is reflected by later bedtimes and longer sleep durations on holidays or weekends. However, current high school schedules are not favorable for adolescents in many school districts within India. For example, one study showed that the average adolescent's school night bedtime is 10:30 pm and rise time is 6:00am. During weekends, the bedtime and rise time are delayed until 1 am and 10 am, respectively, suggesting that the sleep/wake schedule during school days was adjusted to school demands, rather than a more natural circadian rhythm. Many high schools start earlier than elementary schools, adding a greater demand to align sleep/wake schedules with adolescents' delayed circadian rhythm. Students who don't have healthy sleeping habits or don't get enough sleep at night are more likely to feel stressed than students who get plenty of sleep, according to the National Sleep Foundation. Sleep allows a student's body and brain to recharge, and it helps to keep the immune system strong. Inadequate amounts of sleep can make a child more aggressive and limit his ability to learn, concentrate and solve problems. The National Sleep Foundation recommends that young people sleep 8.5 to 9.25 hours per night, and that they maintain a regular sleep schedule.

There has been an increased awareness of insufficient and/or poor quality sleep among adolescents. In general, adolescents prefer to retire and rise late, especially when their melatonin release is delayed during puberty. This preference is reflected by later bedtimes and longer sleep durations on holidays or weekends. However, current high school schedules are not favorable for adolescents in many school districts within India. For example, one study showed that the average adolescent's school night bedtime is 10:00 pm and rise time is 6:00 am. During weekends, the bedtime and rise time are delayed until 1 pm and 10:00 am respectively, suggesting that the sleep/wake schedule during school days was adjusted to school demands, rather than a more natural circadian rhythm. Many high schools start earlier than elementary schools, adding a greater demand to align sleep/wake schedules with adolescents' delayed circadian rhythm. So, the investigator of this studies hopes that the result of this study increase public awareness of stress and sleep problems among high school students.

Statement of the problem

A Comparative Study To Assess The Effectiveness Of Mindfulness Meditation Vs Tai Chi Chuan On Stress And Quality Of Sleep Among High School Children In Selected Schools, Kanyakumari District Of Taml Nadu.

Objectives

- To assess the stress and quality of sleep among experimental group I and II of High school children before and after mindfulness meditation Vs Tai Chi Chuan.
- To compare the effectiveness of mindfulness meditation Vs Tai Chi Chuan on stress and quality of sleep among High school children in experimental group I and II.
- To find out the association between mean differed level of stress and quality of sleep among experimental group I and II of High school children with their demographic variables.

Operational definitions

Effectiveness

It refers to reduction of stress and improvement in quality of sleep as determined by significant difference between post test scores of experimental group I and II

Mindfulness meditation

Mindfulness meditation refers to a type of relaxation technique that essentially involves focusing on our mind on the present. With mindfulness meditation, we take on the role of an impartial observer of everything that passes before our attention. Mindfulness meditation will be taught for experimental group I and they will be practicing before the investigator for forty minutes, twice weekly for six months

Tai Chi Chuan

Tai chi is a mind and body practice that originated in China as a martial art and is used by many people to improve health and well-being. Tai Chi is a series of slow, controlled movements or postures, usually practiced outdoors to take advantage of the surrounding energy of nature. Tai Chi Chan will be taught for experimental group II and they will be practicing before the investigator for forty minutes, twice weekly for six months

Stress

Stress is an uncomfortable subjective feeling felt by the higher secondary school children which makes changes in physical, mental, emotional adjustment or response assessed by Modified Stress Questionnaire.

Quality of sleep

It refers to the physiological and psychological relaxation of the mind and body of the higher secondary school children which have an effect on physical, mental, emotional adjustment or response assessed by modified Pittsburgh sleep index scale.

Hypotheses

- H₁ : There will be a significant difference in the level of stress and quality of sleep among experimental group I and II of High school children before and after mindfulness meditation Vs Tai Chi Chuan
- H₂ : There will be significant effectiveness of mindfulness meditation Vs Tai Chi Chuan on stress and quality of sleep among experimental group I and II
- H₃ : There will be a significant association between mean differed level of Stress And Quality of sleep among experimental group I and II of High school children with their Demographic variables

METHODOLOGY

Research Design

True experimental design

Setting of the Study

The study was conducted Bishop Arokiasamy Higher Secondary School, Kanyakumari District and Alpha Matriculation Higher Secondary School, Kanyakumari District

Population

School children between the age group of 13 -17 years

Sampling Technique

Simple random sampling technique

Sample Size

Based on the Incidence and the Prevalence of the school children stress findings in the location. Total sample size was 40, out of which 20 were experimental group I and 20 were experimental group II

Criteria for sample selection

Inclusion criteria

High school children

- Age group between 13 and 17 years.
- Who were able to do the study intervention
- Who were willing to co operate during the study period.

Exclusion criteria

- High school children who were not available at the time of data collection.
- High school children who were free of any morbidity.

Tool preparation

The tool consists of three parts. They are,

Section A: Demographic variables

Section B: Stress Questionnaire for Students

Section C: Modified Pittsburgh Quality of Sleep Index Scale

Section A: It consists structured questionnaire to collect the demographic variables of the samples such as age, gender, class, religion, place of residence, type of family, siblings, father's education, mother's education, father's occupation, mother's occupation and monthly income of the family

Section B: It consists of Stress Questionnaire for Students. It consists of 20 questions and the maximum score is 80. Students stress score was graded as follows . It is a five point scale and the maximum score is 80. Items are scored as,

For positive statements, Very often - 0, Often - 1, Sometimes - 2 , Rarely - 3, Never - 4

For negative statements, Very often - 4, Often - 3, Sometimes - 2 , Rarely - 1 Never - 0

Scoring: If the total score is 0-20, it indicates no stress. If it is 21-40, then mild stress, if the score is 41-60, it indicates moderate stress, if the total score is 61-80 then the subject is suffering from severe stress

Section C: Self administered questionnaire of modified Pittsburgh sleep index scale. It consists of 30 questions. It is a four point scale and the maximum score is 90. Items are scored as,

.Never-0 .Occasionally-1 .Frequently -2 .Always -3

Scoring: If the total score is 0-30, it indicates good quality of sleep, 31-60 means fair quality of sleep and 61-90 indicates poor quality of sleep

Data collection procedure

After getting the consent from the principal, the investigator met the students in both the settings and explained the purpose of the study. The investigator assured the confidentiality of their responses. Stress Questionnaire for Students and Modified Pittsburg Quality of Sleep Index Scale was administered to assess the pre test level of the quality of sleep among the high school children in experimental and control group. Mindfulness meditation was taught for experimental group I and they were practicing before the investigator for forty minutes, twice weekly for six months. Tai Chi Chan was taught for experimental group II and they were practicing before the investigator for forty minutes, twice weekly for six months. Post test was conducted in the seventh month for both the experimental and control group. All the participants cooperated well with investigator in both pre test and post test.

RESULTS

Percentage distribution of school children according to their demographic variables and personal variables (N₁ = 40, N₂ = 40)

Experimental group – I

According to demographic variables, distribution of high school students studying in high schools, shows that the highest percentage(40%) of age group among them is 13 years, 55% of them were female, 60% of them were hindus,65 % were from rural places, 90% were belonging to nuclear family, 45% of them have two siblings, 40% among their fathers' have got elementary education, 40% of their mothers have completed higher secondary,55% of their fathers were doing unskilled/labour job, 90% of the mothers were unemployed/homemaker. According to personal variables, distribution of high school children shows that the highest percentage(60%)in number of working days of school per week is 6 days, 55% of them were having eight hours as working hours per day at school, 60% of them were having four hours of study at school per day, 35% of the High school children were studying for 5 hours at home per day, 55% of them are having indoor games as their extracurricular activity at school.

Experimental group – II

According to their demographic variable, distribution of high school students shows that the highest percentage(30%) of age group was 15 years. 55% of them were hindus,75 % were from rural places, 72% of the High school children were belonging to nuclear family, highest percentage(55%) of them have two siblings, 35% among their fathers' have got high school education, 40% of their mothers have completed higher secondary,60% of their fathers were doing unskilled/labour

job, 90% of the mothers were unemployed/ homemaker. According to their personal variables, distribution of high school children shows that the highest percentage (70%) in number of working days of school per week is 7 days per week, 60% of them were having eight working hours per day at school, 55% of them were having four hours of study at school per day, 50% of the High school children were studying for 4 hours at home per day, 55% of them are having outdoor games as their extracurricular activity at school.

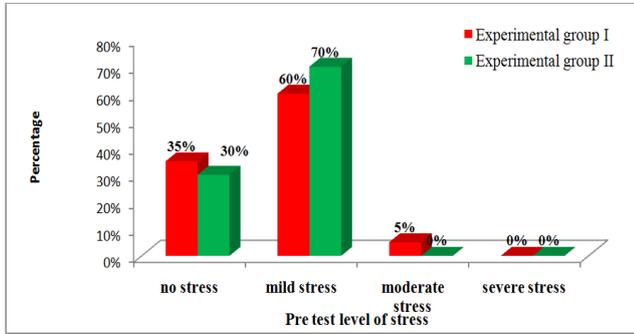


Figure 1. Distribution of samples according to the level of stress before intervention

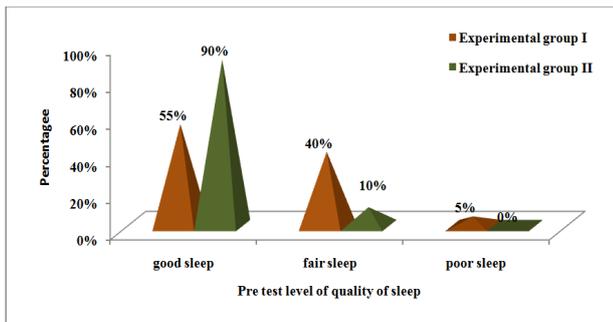


Figure 2. Distribution of samples according to the level of quality of sleep before intervention

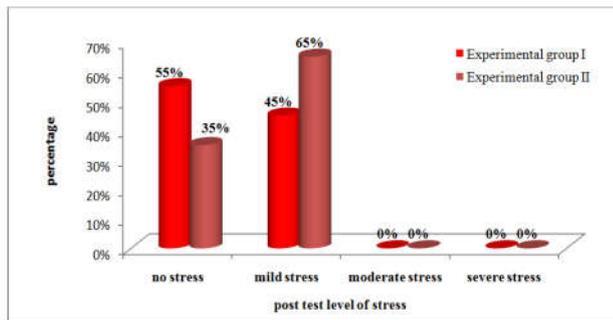


Figure 3. Distribution of samples according to the level of stress after intervention

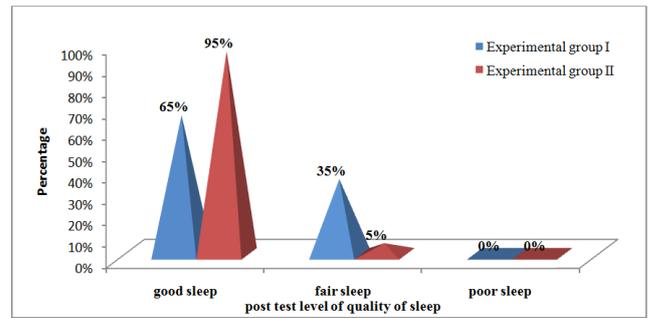


Figure 4. Distribution of samples according to the level of quality of sleep after intervention

Frequency and percentage distribution of post test scores of stress and quality of sleep among High school children in experimental group I and II (N₁=40) (N₂ = 40)

Level of stress and quality of sleep	Post test scores			
	Experimental group I		Experimental group II	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
No stress	22	55	14	35
Mild stress	18	45	26	65
Moderate stress	-	-	-	-
Severe stress	-	-	-	-
Quality of sleep				
Good	26	65	38	95
Fair	14	35	2	5
Poor	-	-	-	-

Frequency and percentage distribution of post test scores on stress among High school children in experimental group I and II depicts that, in experimental group I, 55% were having no stress and 45% were having mild stress, whereas in experimental group II, 35% were having no stress and 65% were having mild stress. In quality of sleep, experimental group I, 65% were having good quality of sleep and 35% were having fair quality of sleep, whereas in experimental group II, 95% were having good quality of sleep and 5% have fair quality of sleep. It seems that Tai Chi Chuan was highly effective than Mindfulness Meditation on stress among high school children.

Area wise comparison of mean, SD, and mean percentage of experimental group I and II post test stress scores

The overall mean score (11.28± 6.47) which is 28. 19% in experimental group I whereas in experimental group II the mean score (10.78 ± 0.37) which is 26.94%. It seems that Tai

S. No.	Areas	Max scores	Post test score				Difference in Mean (%)		
			Experimental group I		Experimental group II				
			Mean	SD	Mean(%)	Mean	SD	Mean(%)	
1	Academic	40	11.3	7.81	28.25	10.3	6.00	25.75	2.5
2	Non academic	40	11.25	6.12	28.13	11.25	6.37	28.12	0.01
	Total	80	11.28	6.47	28.19	10.78	0.37	26.94	1.25

S. No.	Areas	‘t’ value		Level of Significant
		Experimental group I	Experimental group II	
1	Academic	1.14	2.63	P< 0.05 Significant
2	Non academic	2.12	0.02	P< 0.05 Significant
	Total	3.26	2.65	P< 0.05 Significant

Chi Chuan and Mindfulness Meditation were most effective in reducing non academic stress than academic stress among High school children.

Paired 't' test value for level of stress among experimental group I and II

Paired 't' test calculated to analyze the difference in pre and post test scores on different aspects of stress among High school children in experimental group I and II . Experimental group I was 3.26 and 2.65 was in experimental group.

Association between experimental group I and II post test scores on stress and quality of sleep among high school children with their demographic variables

There was significant association was found in gender, class, type of family an income in experimental group I whereas in experimental group II gender, class and religion and no significant association found in other demographic variables like age, religion, place of residence, number of siblings, father's education, mother's education, father's occupation and mother's occupation.

Conclusion and Recommendations

The study was done to compare effectiveness of mindfulness meditation and taichi chuan on stress and quality of sleep among high school children in Tamil Nadu. In experimental group I, the mean difference between pre test and post test score of stress was more than the mean difference between pre test and post test score on quality of sleep. In experimental group II, the mean difference between pre test and post test score of quality of sleep was more than the mean difference between pre test and post test score on quality of sleep. Hence it was conclude that taichi chuan was more effective than mindfulness meditation in reducing stress. On the other hand, mindfulness meditation was more effective in improving quality of sleep than taichi chuan among high school children.

REFERENCES

- Adolescents in India. a profile, UN System In India; December 2003, page no:3, 11
- Basavanthappa B T. Nursing Research. 1sted. Bangalore: Jaypee Brothers Medical Publishers Private Limited; 1998
- Bhati M S. Essentials of psychiatry. 3rd ed. Mumbai: CBS Publishers and Distributors; 2004
- Boyd. Psychiatric Nursing Contemporary Practice. 4thed. New Delhi: Lippincott Publications; 2008
- Caring for your anxious teen. American Academy Of Paediatrics; 2003 from www.addthis.com
- Daniel. J, Buysse, 2005. *Review of sleep and psychiatry*. (1st ed.,) Washington, American Psychiatry Publications.
- Deb, Chatterjee & Walsh. 2010. Stress Amongst High School Students In India *Australian Journal of Educational & Developmental Psychology*, Vol:10, pp18 – 31
- Donald. Complementary and alternative medicine. Missouri: Mosby Company; 2000
- Kelgan. Alternative and Complementary Therapy For Stress And Stress, *Journal of Psychosocial Nursing*, 2003, Vol: 22(7), Page no 4-12.
- Lewis, Heitkemper, Dirksen, O'Brien & Bucher. 2006. *Medical Surgical Nursing (4th Ed.)*. NewDelhi: Mosby Publications.
- Napoli, Krech and Holley. 2005. Mindfulness Training for Elementary School Students: The Attention Academ, *Journal of Applied School Psychology*, Vol.21 (1), page no:103.
- Shaddocks. Synopsis of psychiatry. 9thed. Philadelphia: Lippincott; 2003
- www.cedu.niu.edu,
www.kidshealth.org from www.google.com
- Zisapel, N. 2007. Sleep and sleep disturbances retrieved from June, 2010 retrieved from <http://en.wiki.org/sleep>.
