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Stress Management Programme on the Stress of Chiang Mai University Students: A Pilot Study

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KEYWORDS

Stress management programme

Breathing technique

Muscles relaxing technique

Mindfulness

CBT

University students

ABSTRACT

Stress is the problem that is often found in students due to their higher expectations and the changes happening at the personal, social and environmental levels. The main objective of the present study was to develop and analyze the results of a stress management programme conducted for students at Chiang Mai University, Chiang Mai, Thailand. This was quasi-experimental research, conducted according to the one-group plan. The student initiatives included five Chiang Mai University students, selected through purposive sampling after passing the initial screening. They were evaluated by completing the basic information questionnaire of the Suanprung Stress Test-20 (SPST-20) and the Suanprung Stress Test-60 (SPST-60) before and after the programme. The tools used in this study were developed from the conceptual framework according to the Canadian Model of Occupational Performance and Engagement (CMOP-E) model. The researcher used the breathing technique using the diaphragm, and muscle relaxing technique. The concept of emotional awareness was conducted according to the four foundations of mindfulness, and cognitive behavioral therapy (CBT) with group process in occupational therapy. The results of the study revealed that the sample population had significantly lower stress levels after joining the stress management programme. However, it was observed that there was no difference in the susceptibility to stress levels before or after joining the programme. In general, this stress management programme can be undertaken by other students of Chiang Mai University to monitor their stress levels.

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1 Introduction

Nowadays, students and young people are more prone to stress and stress-related problems due to different kinds of internal and external expectations they encounter in everyday life. Moreover, it has been pointed out that young people were particularly sensitive towards their studies, owing to the changes in personnel and social levels (Reddy et al. 2018). Stress-related problems arise from more work responsibilities, classroom participation, punctuality, financial stability, and maintaining a balanced life. This in turn would create more risks resulting in negative stress levels that might impact their academic achievements as well (Portoghese et al. 2019). The mental health service from Thailand reported that the majority of the people who consulted regarding mental health problems were the youth of aged between 20 and 25 years (20.1%), who rendered 70,534 times advice services via telephone (Ministry of Public Health 2020). Additionally, in 2019, the Child and Adolescent Mental Health Rajanagarindra Institute (CAMRI) reported that 51.36% of youth called to receive guidance on stress-related issues leading to mental illness (Ministry of Public Health 2020). These evidences supported that chronic stress could also have an important role in initiating severe psychiatric symptoms and defects such as depression, and bipolar disorder, after experiencing a catastrophic event (Davis et al. 2017). Therefore, to prevent mental health problems that will occur in students, Universities should promote stress management skills for students.

On analyzing the literature data, there were about 24 studies focused merely on stress management programme with 1,431 university students. Regehr et al. (2013) highlighted the efficiency of cognitive-behavioral therapy and efficient mindfulness could reduce stress in university students. The participants of these programmes were more female students from western countries like the USA, Switzerland, Scotland, etc. Similarly, in Thailand, various techniques such as progressive muscle relaxation training, Anapanasati meditation (Leungprawat 2004), yoga, (Chidduan 2013), breath training, muscle relaxing technique, meditation, (Singhchada et al. 2016), provision of advice in an integrated focus group, aromatherapy, massage, (Yooiam et al. 2017), and Buddhist psychology (Chiangkoontod 2018) were followed by the students to manage stress. These entire studies highlight that stress management can be achieved by following the aforementioned techniques. Previous studies have shown that stress management programme only use certain techniques. Very few stress management programme incorporate stress relaxation techniques and promote stress-management skills together. Therefore, the researchers were interested to understand the techniques related to managing stress by analyzing the symptoms of stress, the emotions caused by stress, and the management of stressful thoughts, among the students of Chiang Mai University.

The researcher analyzed and selected stress management techniques to create an appropriate stress management programme for university students. The stress relaxation techniques included the breathing technique using the diaphragm and muscles relaxing technique, and stress management skills with the concept of emotional awareness and cognitive behavioral therapy. Diaphragmatic breathing is a deep breathing, integrated mind-body training that is effective for managing stress and mental states, also effective in improving one's ability to manage emotions as well as reducing stress, anxiety, and depression (Ma et al. 2017; Stromberg et al. 2015; Brown and Gerbarg 2005). The diaphragmatic breathing technique is a technique that enables one to relax and manage the occurring stress. This is an adjustment of the sympathetic nerve system (Hopper et al. 2019) which increases the capacity of managing emotions (Hamasaki 2020). Muscle relaxation techniques bring adequate muscle relaxation which in turn can reduce stress. Deep muscle relaxation reduces physiological tension (La and John 2002; Carmody et al. 2008; Dhyani et al. 2015; Merakou et al. 2019; Silveira et al. 2020). Thus, this is a practiced method for relaxing the stress symptoms, which can be done by anybody, even in a working environment, and this has a positive effect on the development of personnel activity (Silveira et al. 2020). Emotional awareness is a type of mindfulness meditation that aims to make an individual able to deal with emotions by being mindful or directing the emotions, thoughts, feelings, and internal states that arise within oneself. Mindfulness can reduce stress, and help to improve a person's physical and mental health which contributed to the reduction of mental and physical symptoms of stress (Grossman et al. 2004; Carmody et al. 2008; Sedaghatb et al. 2011; Lia et al. 2020). Cognitive-behavioral therapy helps to change a person's irrational thinking about himself and the outside world. Using cognitive behavioral therapy students can reduce their stress and adjust stress responses (Mennuti et al. 2006; Regehr et al. 2013; Jafar et al. 2016).

Hence, through the present study a stress management programme was developed and evaluated its effect on students' activities at Chiang Mai University. The students who were selected to join a group called the sample population evaluated themselves on the form of those stress that affected their life activity. The programme which was developed for this study maintains an adjustment between stress relaxation, and stress management skills. The programme focused on managing the physical symptoms of the stress, the occurring emotions from the stress, adjustment of the thinking that leads to stress, and creating comprehensive stress management. The main objective of this study is to develop and analyze the results of a stress management programme conducted for students at Chiang Mai University, Chiang Mai, Thailand.

2 Materials and Methods

This study was quasi-experimental research, wherein, an experiment was conducted according to the one-group plan that evaluated the results before and after the respondents joined the stress-releasing programme developed for the respondents. Herein, the results of the sample population were measured for the period before and after programme (one-group pretest-post-test design).

2.1 Participants

The sample population in this study was five undergraduate students in the normal academic semester of Chiang Mai University comprising two male students (40%) and three female students (60%). They were screened by using purposive sampling via the initial screening that evaluated their stress from a medium to violent level, which in turn would affect their life activity.

2.2 Stress Releasing programme

The main tool used in this experiment was a stress management programme. This allowed the researcher to conduct the experiment and develop the programme from the conceptual framework according to the CMOP-E model. The sample population participated in the programme one time per week for 90 minutes per session for eight weeks. The programme was separated into two periods i.e. (1) the stress management skills and (2) the stress relaxation techniques (Regehr et al. 2013; Jafar et al. 2016; Singhchada et al. 2016). The programme was designed to assist in relaxing the occurring symptoms of stress with diaphragmatic breathing techniques and the muscle relaxing method as the stress relaxing techniques. For managing issues related to emotions, the Vipassana-Kammattana principle and the same meaning as the four foundations of mindfulness were utilized (Regehr et al. 2013). For the part of managing issues related to the thinking method of creating stress, the cognitive behavioral therapy technique including the group process in occupational therapy as the skill of managing the stress periods was used (Cole 2018).

The programme passed the content validity test conducted by qualified experts in mental health and psychology and the cognitive behavioral therapy process and the behaviour. The experts examined the validity of the stress management programme's content by calculating the conformance index with a checklist. The overall program consistency consisted of 5 aspects, namely, the appropriateness of the theory of program name suitability, the suitability of activities order, the content suitability following the objectives, the suitability of the programme duration, and the suitability of the used equipment. In the program, the correspondence between the assessment and the objectives, the correspondence between the activities and the

programme, the correspondence between the knowledge and the objectives, and the correspondence between the work and the objectives were also noted. The expert confirmed that the stress-management programme had a conformance index that demonstrated the programme's compliance across all aspects of the checklist.

For gathering the required data, the tools consisted of the basic information questionnaire of the sample population from the Suanprung Stress Test-20 (SPST-20) and the Suanprung Stress Test-60 (SPST-60). These tests had been developed by Mahatnirunkul et al. (1997), with details as follows:

1) First part of the questionnaire has been developed for the extraction of basic information like gender, age, class year, average revenue per month, and the parents' status of the sample population.

2) The SPST-20 stress test was created to measure the stress level suitable for the Thai people and this comprises five levels of the estimation scale. The interpretation of the results would segregate the overall stress level of the sample population into one of the following four levels, such as low level (score of 0-23), medium level (score of 24-41), high level (score of 42-61) and violent level (score of 62 or more) (Mahatnirunkul et al. 1997).

3) The SPST-60 test questionnaire comprised of three parts which determine the level of stress (Mahatnirunkul et al. 1997) and for this the questions were developed to measure the susceptibility to stress level (survey question was based on the daily life of the student, which might affect the stress level), the sensitivity of the sources of stress (this part of the questionnaire tries to explore the cause of the stress), and the symptoms of stress (this would be a result of a personal desire or high pressure on his/her mind). The interpretation of the above results of the SPST-60 could separate the score into three levels as follows:

The stress lever	Low	Medium	High	Violent
Part 1: Susceptibility to stress level	0-20	21-26	27-33	33+
Part 2: Sources of Stress	0-36	37-57	58-79	79+
Part 3: Symptoms of stress	0-17	18-36	37-57	57+

2.3 Ethical approval

The research work carried out in the present study passed consideration of human research ethical requirements and received approval from the Ethical Committee of the Research, Faculty of Associated Medical Sciences, Chiang Mai University, Thailand (AMSEC-64EX-019). The researcher provided information about the details of the research, including the right and decision to

participate or not to participate, to the respondents. Moreover, the personal information of the participants was kept confidential and was not revealed in any matter.

2.4 Procedure

A stress management programme was developed or outlined by reviewing the available literature, past concepts, and theories related to the stress management programme. Further, a tool was developed and used in the operational experiment to check for the content validity found in the index of item-objective congruence (IOC) by five qualified people related to mental health and psychology. During the study, the process and progress of the cognitive behavioral therapy group was monitored by the psychotherapist to develop suitable results and recommendations. For data extractions, a well-structured questionnaire (SPST-20 and SPST-60) based on the basic information related to the before and after joining the programme was circulated to the selected respondents.

The experiment of the stress management programme was used with the sample population once a week for 90 minutes per session for eight weeks. The researcher initiated the programme by building a relationship to bring it into the programme each session. During the stress management skills period, the researchers provided information on stress management techniques and allowed the subjects to comment on what they had learned together and their experiences in managing stress. In the stress relaxation period, the researchers taught members to use diaphragmatic breathing and muscle relaxation.

2.5 Data Analysis

The analysis of the general data of the sample population using description statistics comprised the percentage, mean, and standard deviation. In addition, for the comparison of different levels of stress, the sensitivity of the creation of different stress levels,

sources of stress, and the symptoms of stress on the respondents before and after joining the stress management programme was analyzed by the Wilcoxon signed-rank test.

3 Results and Discussion

General information related to the respondent's gender, age, faculty of study, the students' class year, average revenue per month, and the parents' status were collected by a well-developed questionnaire. The sample population of five people is composed of two males (40%) and three females (60%), with an average age of 21 years. Four students were from the Faculty of Health Sciences (80%), and one was from the Faculty of Humanities and Social Sciences (20%), where three people were in their fourth year (60%), one student in the first year and one in the second year. In most cases, the respondents lived with their parents (80%) (Table 1).

From the SPST-20 test results, the overall stress level could be interpreted by the measurement taken before and after the stress management programme. It was observed that the stress of the sample population decreased from a violent level to a high level after the therapy process. In comparison, the stress level of the sample population before joining the programme had an average stress score (\bar{x}) of 66 scores, which was interpreted as being the violent stress level. However, after joining the programme, the average stress score was decreased to be 52.4 scores, which was interpreted as being a high-stress level. The SPST-60 test results showed that after participating in the stress management programme, the sample population had lower levels of stress as measured by sources of stress and symptom of stress. After the programme sources of stress level dropped to a high average stress score (\bar{x}) of 60 scores, and symptoms of stress dropped to a high average stress score (\bar{x}) of 55. However, no change in the susceptibility to stress levels was found before and after joining by the programme (Table 2).

Table 1 General information of the sample population

Gender	2 males (40%)
	3 females (60%)
Age	Average of 21 years old (Min. 19; Max. 22)
Faculty	Faculty of Science and Technology: 0 people (0%).
	Faculty of Science and Health: 4 students (80%).
	Faculty of Humanities and Social Sciences: 1 student (20%).
Class year	1 st year: 1 student (20%)
	2 nd year: 1 student (20%)
	4 th year: 3 students (60%)
Average revenue per month	≤ THB 5,000: 1 student (20%)
	THB 5,001 - THB 15,000: 4 students (80%)
Parents' status	Parents live together: 4 students (80%)
	Parents have separated: 1 student (20%)

Table 2 The average stress of the sample population before and after the stress management programme

Instrument	Stress Level	Pretest (n=5)		Post-test (n=5)		t	p-value
		\bar{x}	S.D.	\bar{x}	S.D.		
The SPST-20 test	Overall stress level	66.00	12.410	52.40	12.973	2.023	0.043
The SPST-60 test	The susceptibility to stress level	26.80	1.643	25.00	4.528	1.633	0.102
	Sources of stress	80.60	4.561	60.60	5.727	2.060	0.039
	Symptoms of stress	79.00	18.480	55.00	11.136	-2.032	0.042

*p < 0.05

Results presented in table 2 revealed the overall comparison of the stress level, the susceptibility to the stress level, the sources of stress, and the symptoms of stress. It was found that after joining the stress management programme, the sample population had a low-stress level with a statistical significance level ($p \geq 0.05$). The stress level from the sources of stress and the symptoms of stress after joining the programme was found significantly lower ($p \geq 0.05$) after joining the programme.

Overall, from the analysis, it was found that the students had differences in stress levels before and after participating in the stress management programme, indicating that the stress management programme was able to help the students to manage their stress. Using the group process to create a stress management programme helped group members learn better stress-management skills and methods as the sample populations had similar problems with the academic stress of university students (Yooiam et al. 2017). In addition, physically this programme included stress relaxation and stress management skills, which enabled the sample populations to comprehensively manage their stress (Singhchada et al. 2016; Hopper et al. 2019) emotionally this program increased the capacity of managing their emotions (Hamasaki 2020). Further, mindfulness as a base can reduce stress, help in the improving person's physical and mental health and contribute to the reduction of mental and physical stress symptoms (Grossman et al. 2004; Carmody et al. 2008; Sedaghatb et al. 2011; Regehr et al. 2013; Chiangkoontod 2018; Lia et al. 2020). Cognitive behavioral therapy can help to reduce student stress and adjust their stress response (Brown and Gerbarg 2005; Mennuti et al. 2006; Regehr et al. 2013; Stromberg et al. 2015; Jafar et al. 2016; Ma et al. 2017). When the sample populations were aware of the stress-induced changes, they were able to choose appropriate stress management methods that resulted in a decrease in their overall stress level. Finally, the group process helped in learning the skills and making strategies for managing stress. Moreover, this used the psycho-education group of cognitive-behavioral principles based on the appropriateness and specifically with stress for the stress management skills training. This encouraged the sample population to create their assessment in managing their stress.

Conclusion and Future Research

In general, the present study was focused on the results of the stress management programme for the students of Chiang Mai University. Results of the study suggested that this programme enables the respondents to manage their stress through various stress relaxation techniques and stress management skills. Hence, this stress management programme was found successful in managing the stress of Chiang Mai University students.

This study is a pilot study; therefore, the number of respondents kept less and the results of this study cannot be applied to larger populations, but these results provide the possibility of applying stress management programs to larger samples. Additionally, this research was designed as a one-group form, which had an evaluation of the results related to the before and after the respondents joined the programme. Hence, future studies could design two or more groups for research.

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Conflicts of Interest

The authors declare no conflict of interest.

References

- Brown, R.P., & Gerbarg, P.L. (2005). Sudarshan Kriya Yogic breathing in the treatment of stress, anxiety, and depression: Part II-clinical applications and guidelines. *The Journal of Alternative and Complementary Medicine*, 11(4), 711-717.
- Carmody, J., Reed, G., Kristeller, J., & Merriam, P. (2008). Mindfulness, spirituality, and health-related symptoms. *Journal of Psychosomatic Research*, 64(4), 393-403.
- Chiangkoontod, S. (2018). The development of the stress management program according to the Buddhist Psychology for

- students in Faculty of Nursing, Siam University. Unpublished PhD thesis submitted to the Maha Chulalongkorn Rajavidyalaya University, Bangkok.
- Chidduan Y. (2013). The result of using the program to reduce the stress of Children and the youth of the children and the youth center of observation and protection, Nakhon Pathom Province. *Radio Journal*, 24(4), 65-15.
- Cole, M.B. (2018). *Group dynamics in occupational therapy: The theoretical basis and practice application of group intervention* (5thed.). USA: SLACK Incorporated.
- Davis, M.T., Holmes, S.E., Pietrzak, R.H., & Esterlis, I. (2017). Neurobiology of chronic stress-related psychiatric disorders: Evidence from molecular imaging studies. *Chronic Stress*, 1(1), 1-21.
- Dhyani, D., Sen, S., & Raghumahanti, R. (2015). Effect of progressive muscular relaxation on stress and disability in subjects with chronic low back pain. *IOSR Journal of Nursing and Health Science*, 4(1), 40-45.
- Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57(1), 35-43.
- Hamasaki, H. (2020). Effects of diaphragmatic breathing on health: A narrative review. *Medicines*, 7(65), 1-19.
- Hopper, S.I., Murray, S.L., Ferrara, L.R., & Singleton, J.K. (2019). Effectiveness of diaphragmatic breathing for reducing physiological and psychological stress in adults: A quantitative systematic review. *Joanna Briggs Institute Database of Systematic Reviews & Implementation Reports*, 17(9), 1855-1876.
- Jafar, H.M., Salabifard, S., Mousavi, S.M., & Sobhani, Z. (2016). The effectiveness of group training of CBT-based stress management on anxiety, psychological hardness and general self-efficacy among university students. *Global Journal of Health Science*, 8(6), 47-54.
- La, P., & John, J.E. (2002). The impact of abbreviated progressive muscle relaxation on salivary cortisol. *Biological Psychology Journal*, 60(1), 1-16.
- Leungprawat, N. (2004). The result of using the method of managing with the stress by the meditation, Four Noble Truths and the tensing and the relaxing of muscles training for managing with the stress of Srinakharinwirot University students. Unpublished M.Sc. dissertation submitted to the Srinakharinwirot University, Bangkok.
- Lia, Y., Suna, W., Sunb, X., Suna, J. et al. (2020). Effects of mindfulness meditation on anxiety, depression, stress, and mindfulness in nursing students: A meta-analysis and trial sequential analysis of randomized controlled trials. *Frontiers of Nursing*, 7(1), 59-69.
- Ma, X., Yue, Z., Gong, Z., Zhang, H., et al. (2017). The effect of diaphragmatic breathing on attention, negative affect and stress in healthy adults. *Frontier in Psychology*, 8(874), 1-12.
- Mahatnirunkul, W., Poomphisalchai, W., & Tapunya, P. (1997). *The research report in the topic of the creation of the Suanprung Stress Test*. Chiang Mai: Suanprung Hospital, Chiang Mai Province.
- Mennuti, B.R., Freeman, A., & Christner, W.R. (2006). *Cognitive behavioral intervention in educational settings, a handbook for practice*. New York: Taylor & Francis Group
- Merakou, K., Tsoukas, K., Stavrinou, G., Amanaki, E., et al. (2019). The effect of progressive muscle relaxation on emotion competence: depression, anxiety, stress, sense of coherence, health-related quality of life, and well-being of unemployed people in Greece: An intervention study. *Explore*, 15(1), 38-46.
- Ministry of Public Health (2020). Department of Mental Health revealed that Thai adolescents consulted the mental health hotline 1323 in 2019, found the most problem is the stress problem and suggest the stress management techniques Retrieved from <https://www.dmh.go.th/news-dmh/view.asp?id=30188>
- Portoghese, I., Galletta, M., Porru, F., Burdorf, A., et al. (2019). Stress among university students: factorial structure and measurement invariance of the Italian version of the Effort-Reward Imbalance student questionnaire. *BMC Psychology*, 7(68), 1-7.
- Reddy, K.J., Menon, K.R., & Thattil, A. (2018). Academic Stress and its Sources among University Students. *Biomedical & Pharmacology Journal*, 11(1), 531-537.
- Regehr, C., Glancy, D., & Pitts, A. (2013). Interventions to reduce stress in university students: A review and meta-analysis. *Journal of Affective Disorders*, 148(1), 1-11.
- Sedaghatb, M., Mohammadia, R., Alizadeha, K., & Imania, A.H. (2011). The effect of mindfulness-based stress reduction on mindfulness, stress level, psychological and emotional well-being in Iranian sample. *Procedia Social and Behavioral Science*, 30(11), 929-934.
- Silveira, E.A., Batista, K.M., Grazziano, E.S., Bringueite, M.E.O., & Lima, E.F.A. (2020) Effect of progressive muscle relaxation on stress and workplace well-being of hospital nurses. *Enfermería Global*, 58(1), 486-493.

- Singhchada, A., Rojphisalkij, K., & Nokdee, S. (2016). The result of the stress management program on the stress of elderly persons. *Academic journal of Huachiew Chalermprakiet University, 19*(38), 49-60.
- Stromberg, S.E., Russell, M.E., & Carlson, C.R. (2015). Diaphragmatic breathing and its effectiveness for the management of motion sickness. *Aerospace Medicine and Human Performance, 86*(5), 452-457.
- Yooiam, S., Srisawad, P., Sooknaisit, A., & Kullanapadol, P.(2017). The development of the stress management program with the giving of the advice in the integrated form together with the alternative medicine. *Journal of the Police Nurse, 9*(2), 139-152.