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RESEARCH ARTICLE

Effect of A Stress Management Program on the Stress and Occupation of Chiang Mai University Students

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Abstract:

Background:

Stress is a problem that is often found in students due to their own expectations within themselves and those of others which students have to bear. Furthermore, stress occurs from the changes at the personnel, social, and environmental levels. This stress has an effect on the occupation of students.

Objective:

This study was conducted to develop a stress management program and increase the capacity in the occupational performance of Chiang Mai University students.

Methods:

This study was quasi-experimental research that undertook an experiment according to the two-group research design. This measured both the pretest and post-test results of the experiment. The study used purposive sampling with a total of 24 samples comprising 12 persons in the experimental group and 12 persons in the control group. The experimental group joined the program eight times or for eight weeks one time per week for 90 minutes. This utilized the technique of managing the stress, which consisted of stress management skills and stress relaxation techniques. The sample was evaluated with an evaluation form. Moreover, the Suanprung Stress Test-20 and Test-60 were used, as well as an evaluation form of the occupational performance of the students, which was adapted from a similar form of the Canadian Occupational Performance Measure (COPM). This was conducted before and after joining the program, so to gather information, an analysis on the information by using the independent t-test to compare the experimental group and the control group before and after receiving the stress management program, as well as the dependent t-test was conducted. Information analysis was carried out to compare the samples in the same group.

Results:

After receiving the stress management program, the experimental group had less stress, which had statistical significance. There was also greater capacity in the occupational performance that also displayed statistical significance. The result of joining the program was different from the control group, that had a statistical significance level of 0.05. In the control group, the people who lived their daily life, as usual, showed no difference between stress and occupational performance.

Conclusion:

The studied results showed the effectiveness of the stress management program in reducing stress and increasing the occupational performance of Chiang Mai University students. This could be implemented as a prototype of the program to solve the problems created from the stress of Chiang Mai University students. This would also have a positive effect on future occupational therapy.

Keywords: Stress, Stress management programs, Breathing techniques, Muscle relaxing techniques, Mindfulness, Cognitive behavioral therapy.

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1. INTRODUCTION

Late adolescence is considered the age range which is important in the lifespan of human beings. This is the age which would have the most changes for an individual consi-dering many aspects such as physical, emotions, and society. There are also changes in early adulthood [1], which would be the age that may create other problems. From a previous study, it was discovered that stress was one problem found in people who were in the adolescent and early adulthood. Stress has also become one part of the educational life of students with both internal and external expectations. Teenagers have a risk related to academic stress, as there are changes that are

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happening at the personal and social levels [2]. Furthermore, those issues that would create stress would be connected to the increased risk of the negative stress level and the reduction of educational achievement [3]. For the current study, it was found that academic stress was still a serious problem that had an effect on the mental health and well-being of students. This would be a basic skill, at every level in alleviating stress, in addition to the difference in experiencing stress and having a suitable stress management skill [4]. The mental health problem may also have an effect on students' lives in many aspects of life quality, academic achievement, the physical, and satisfaction experience in university, which would result in having an effect on their relationship with friends and family members. Likewise, those problems may have long-term effects. Many students have reported that a health problem has disturbed their studying [5]. A previous survey specified that the stress problem resulted in an effect on the students' academic records in the past 12 months. Moreover, the students experienced anxiety with difficulty in sleeping as well as depression [6]. In the fiscal year of 2019, the Child and Adolescent Mental Health Rajanagarindra Institute, Thailand, reported that teenagers had called to receive advice about stress with anxiety being the number one problem (51.36%). Thus, it was considered that stress was an important problem that had occurred, and preparations might have to be undertaken for contribution, prevention of, and coping with this problem [7]. From a past study, it was found that a method for managing stress had been used in the part of stress relaxation and the use of a stress management skill. Mostly, there was only one method. There was only the minority, who had stress management for the part of the relaxation of the occurring symptoms, management related to the emotions, and management related to the thinking method, which would create the stress [8 - 12]. Therefore, the researchers were interested in the stress management technique, which would cope with these three issues in the group of Chiang Mai University students to manage their stress. For this study, the researchers used cognitive behavioral therapy [13 - 16] under the conceptual framework of the program according to the Canadian Model of Occupational Performance and Engagement (CMOP-E) [17, 18], which saw the performance elements of the person, physical, affective, and cognitive.

The stress management program also consisted of other techniques, such as diaphragmatic breathing. that requires a person to take a deep breath and in doing so, trains the physical and mind in an integrated format, which has efficiency in managing stress and the overall mental state. In the breathing process, the deep inhalation leads to shrinking of the diaphragm and the expansion of the abdomen, producing a vacuum and thus a decrease in the rhythm of breathing, this, simultaneously leads to an increase in the quantity of oxygen in the blood [19, 20]. Additionally, there would be the efficiency for increasing the capacity in managing the emotions [21], including reducing stress, anxiety, and depression [22]. Moreover, deep progressive muscle relaxation would enable reducing the stress and tension. Most of the studies also showed that progressive muscle relaxation helped reduce the stress levels [23 - 27]. In addition, the Vipassana-Kammatthana principle (Insight Meditation) is one of the forms of meditation, which aims to create mindfulness and wisdom [28], so as to manage every type of emotion regardless of it being good or bad. The objective focuses on the attention or emotional awareness, the concept, feelings and many internal states that are happening to oneself [29, 30] for using the mindfulness principle for reducing stress [31]. Moreover, this would still help to adjust the physical and mental health of the individual [32], and simultaneously, the mindfulness would be increased by receiving the mindfulness principle as the basis for reducing stress. Hence, this would provide the effect of reducing the symptoms of stress from the mind and body [33]. Furthermore, the cognitive behavioral therapy has the goal for changing the concept in which the person lacks the reasons related to him/herself and the external world [34]. Consequently, cognitive behavioral therapy could help to reduce stress by studying the students, so there could be an important role in adjusting the response to the stress. This would aim to interpret teenagers and the occurring event, which would affect the emotion and behavior of the individual [35, 36], and there would be a presentation to use cognitive behavioral therapy and behavior in reducing stress in university students [37].

The researchers developed a stress management program by studying concepts and theories to manage stress among students, which would help students manage the physical symptoms of stress, the occurrence of stress, and the concept, which would create the stress comprehensively. As a result, this would have the objective of reducing the stress and increasing the occupational performance of university students according to the intended role.

2. MATERIALS AND METHODS

2.1. Sample and Setting

This study was a quasi-experimental research that experimented according to a research design with two groups. The results of the experimental group and the control group were measured before and after the experiment. The sample consisted of bachelor's degree students in the normal academic semester of Chiang Mai University, Thailand. They were selected by using the purposive sampling method that screened the sample *via* basic screening by using the Suanprung Stress Test-20 (SPST-20) [38]. The survey plan of the stress examined the effect on the occupation for 24 persons who had passed the qualification by having a medium to severe stress level (a score of 24 or more). The interpretation of the SPST-20 evaluation form and the occurring stress showed the effect of stress on the occupation of the students. This determined the sample size by analyzing the testing power with the G* power program. This inputted the raw information directly from past studies, which used the technique of creating a stress management program [11, 12, 39, 40], which consisted of the breathing technique by using diaphragmatic breathing together with progressive muscle relaxation, the technique of managing the emotions by applying the basic idea of emotional awareness according to the Vipassana-Kammatthana principle, the Four Foundations of Mindfulness, and cognitive behavioral therapy via the process in the group of occupational therapy.

This determined the sample size with with confidence levels of 0.80 and 0.05. Hence, the sample was composed of 24 persons with 12 persons each for the experimental group and the control group. Moreover, the experimental group was further separated into two groups with six persons per group according to their suitability. This helped to thoroughly learn the skill and specific strategy for each group member [13]. The two groups of experimental groups received a stress management program with the same activities and processes undertaken by the researchers. After that, they joined the stress management program at the Faculty of Medical Technology, Chiang Mai University.

2.2. Data Collection Tool

The tool for gathering the information in this research consisted of a questionnaire with the information that the researchers had created and the evaluation form that was used to gather the stress information and the occupational performance of the sample. This comprised four tools as follows:

1), The questionnaire created by the researcher for gathering the basic information of the sample that consisted of gender, age, faculty, the year class that the students were studying in, average revenue per month, and the status of the parents.

2), The Suanprung Stress Test-20 (SPST-20), developed by Mahatnirunkul *et al*. in 1997 and used today [38], is a general public stress assessment suitable for Thai people. This test comprised 20 questions that measured the stress overall. The score of SPST-20 had five levels for the estimation scale as follows: 1 = does not feel to have any stress, 2 = has little stress, 3 = has moderate stress, 4 = has much stress, and 5 = has the most stress. If there was no answer, then this would receive a score of 0. The interpretation of the results separated the stress score and the levels of stress were divided into four levels: 1. mild stress, 2. medium stress, 3. high stress, and 4. severe stress. The psychometric properties of the SPST-20, including reliability and validity, were excellent [38].

3), The Suanprung Stress Test-60 (SPST-60), developed by Mahatnirunkul *et al*. in 1997 and used today [38], is a general public stress assessment suitable for Thai people that can assess stress by dividing it into 3 components. This test consisted of 60 questions. This measured the three components of stress: 1. the susceptibility to the section, 2. the sources of stress, and 3. the symptoms of stress. The score of SPST-20 had five levels for the estimation scale as follows: 1 = does not feel to have any stress, 2 = has little stress, 3 = has moderate stress, 4 = has much stress, and 5 = has the most stress. If there was no answer, then this would receive a score of 0. The results were separated into four levels: 1. mind stress, 2. moderate stress, 3. high stress, and 4. severe stress. The psychometric properties of the SPST-20, including reliability and validity, were excellent [38].

4), The Canadian Occupational Performance Measure (COPM), developed by Law *et al*. in 1990 [41 - 44] was used to measure the occupational performance of the university students, who had received the effect from stress. The COPM is a semi-structured interview occupational therapy practitioner used with clients to review occupational performance and satisfaction. The researchers used this form to obtain the information related to the occupation that received the effect from the stress. This enables the participants to order the activity by subjective importance, and allows them to tell about the performance level and satisfaction level in those activities. The psychometric properties of the COPM, including reliability and validity, have been shown to be excellent [45].

2.3. Data Collection Procedure

To gather the information, the researchers searched and studied documents, concepts, theories, and the related research for creating a stress management program and inspecting the program *via* experts related to mental health and psychology; such as; a psychiatrist and an expert in taking care of and helping students for inspecting the accuracy of the content of the stress management program by finding the conformity index value from other experts. After that, the program was used to inspect the process of cognitive behavioral therapy by adjusting and solving the problem of stress according to the suggestion of the experts. Then, advertisement was implemented for the acquisition of the sample group and screening the sample that had the determined qualifications. After examining the content validity and group process of cognitive behavioral therapy used in the stress management program, the researcher was the main delivering agent of the program with one research assistant to assist. Before joining the program, samples were assessed using the SPST-20, SPST-60, and COPM by an occupational therapist. Following that, the program was initiated with the sample of the experimental group once a week for eight weeks for a period of 90 minutes per time. The activity was separated into two parts. The activity in the first part consisted of the stress management skill for a period of 60 minutes, and the activity in the second part comprised the stress relaxation technique for a period of 30 minutes. This referred to the format of the cognitive behavioral therapy and emotional awareness according to the Vipassana-Kammatthana principle, the Four Foundations of Mindfulness, the activity in the second session, and the stress relaxation technique. For this, the researchers used the diaphragmatic breathing techniques and progressive muscle relaxation through the program, as shown in (Table **1**).

Table 1. Information of the stress management program.

No.	Topic	Details
1	The conceptual framework	For seeing the component of the capacity of the person according to the Canadian Model of Occupational Performance and Engagement (CMOP-E), which the occupational performance occurred from the relationship of the physical, affective, and cognitive element, the stress management was related to the three components, which would help to contribute to the performance in the occupation of the person.
2	Used techniques	1. Diaphragmatic breathing techniques. 2. Progressive muscle relaxation. 3. Emotional awareness according to the Vipassana-Kammatthana principle, the Four Foundations of Mindfulness. 4. The cognitive behavioral therapy (CBT).
3	Process	Set the group of occupational therapists [13] in the format of a psycho-educational group with seven steps of the group's operation form.
4	Time period	The program was conducted eight times with one session of 90 minutes per week for the activity.
5	Number of the sample	There were 12 persons in the experimental group, which was separated into two groups with six persons per group. Each group joined the program once a week. There were 12 persons in the control group, who lived their daily lives normally.
6	The activity	**The first session of the activity:** This was the stress management skill with the technique of emotional awareness according to the Vipassana-Kammathana principle, the Four Foundations of Mindfulness, and the cognitive behavioral therapy for a period of 60 minutes. **The second session of the activity:** This was the stress relaxation technique with diaphragmatic breathing and progressive muscle relaxation for a period of 30 minutes.
Program	Activity 1: What is stress?	The first session. The researcher educates about stress: causes, symptoms, and effects of stress through a psychoeducational group. The second session, educate about diaphragmatic breathing and progressive muscle relaxation and take action.
	Activity 2: What situations lead to emotion?	The first session. The researcher guides participants to explore and analyze the relationships of everyday situations that lead to emotions and then observe their emotions with emotional awareness according to the Vipassana-Kammatthana principle. The second session, practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 3: How are the thoughts, emotions, and behaviors related?	The first session. The researcher guides participants to assess the thoughts that lead to their emotions and behavioral expressions in different situations. The second session, practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 4: What are thoughts lead to suffering?	The first session. The researcher educates about "automatic thought" and guides them to find negative automatic thoughts that lead to suffering. The second session, practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 5: Thoughts assessment	The first session. The researcher guides participants to assess their own negative automatic thoughts that lead to suffering. The second session, practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 6: How to adjust thinking?	The first session. The researcher guides the participants to adjust the negative automatic thoughts that lead to suffering by managing physical situation, emotional thoughts, and behavior. The second session included practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 7: Make change by taking action	The first session. The researcher guides participants to follow the changes caused by the change the negative automatic thoughts that lead to suffering. The second session, practice diaphragmatic breathing and progressive muscle relaxation.
	Activity 8: What I want to tell myself?	The first session. The researcher instructed participants to recognize differences in their thoughts, emotions, and behaviors and to build awareness of their own and other's values and researcher summarized the knowledge from participating in stress management program for use in dairy life The second session, practice diaphragmatic breathing and progressive muscle relaxation.

2.4. Statistical Analysis

Descriptive information analysis, such as the frequency value and the percentage value was undertaken. This described the relationship of the basic information of the sample, the average of the sample, and the standard deviation (SD) of the information analysis from the evaluation form. Statistical analysis was also performed for inspecting the results of the program. The researchers inspected the information by testing the spread of the information by using the one-sample Shapiro-Wilk test. This information was spread as the normal curve. The researchers chose to use suitable statistics that were the parametric statistic in the information analysis, the independent t-test statistic to analyze the information to compare between the experimental group and the control group in the period before and after receiving the program, and the dependent t-test statistic. Moreover, the information analysis for comparing the samples in the same group was conducted.

3. RESULTS

3.1. Sample Characteristics

The information from the questionnaire of the basic information of the sample consisted of gender, age, the faculty that the students studied in, the class year that the students were studying in, the average revenue per month, and the status of the parents. For this part, this passed the information analysis with the descriptive statistic (Table **2**) . From the basic information of the sample, it was found that most of the

samples were females (21 persons or 87.50%), and the three males equaled 12.50%. Additionally, 11 persons were studying in the Faculty of Science and Technology (45.83%), and the same amount were studying in the Faculty of Humanities and Social Science. Thirteen persons included in the study were studying in the second year (54.20%) followed by seven persons who were studying in the fourth year (29.12%). Moreover, most of the samples had average revenue per month from THB 5,001 to 15,000 (70.83%). Regarding the status of the parents, half of them were staying together (50%), and the average age of the sample was 20 years old, with the lowest being 18 years old, and the highest being 22 years old.

3.2. Variables of Interest

The information of the stress level of the samples in each group before and after joining the program (n = 24) was obtained from the evaluation with the Suanprung Stress Test-20 (SPST-20). This showed the stress level overall, and the Suanprung Stress Test-60 (SPST-60), which separated the stress into three parts as follows: 1. The fragility or the susceptibility to stress, 2. the measurement form of the background or sources of stress, and 3. the measurement form of the stress (Table **3**) . This showed the results of the score of the stress level of the sample for both groups before and after joining the program.

From Table **3** , it could be seen that the samples for both the control group and the experimental group following the evaluation after joining the program had the average stress score from the Suanprung Stress Test-20 (SPST-20). This was reduced for both groups with a statistical significance level of 0.05. The average score of the stress of the experimental group was also reduced from 88.00 ± 2.92 to be at an average of 51.75 ± 1.22. The average score of the stress of the control group was reduced from 87.83 ± 5.44 to an average of 79.17 ± 6.45. However, when bringing the average score of the stress of the experimental group and the control group to interpret the result of the stress level, it was found that the experimental group's stress level had been reduced from a bad stress level to a high level. For the control group, there was no change in the stress level. When analyzing the results from the Suanprung Stress Test-60 (SPST-60), it was found that the experimental group had changed the average score of the three parts of the program to be reduced to have a statistical significance level of 0.05. On the other hand, the control group did not receive the program to have the average score in the third part, so only the symptoms of stress were increased with a statistical significance level of 0.05, and the first and second parts displayed no difference.

Table **4** shows the comparison of the information of the stress level between the samples before and after joining the program. This found the average stress from the Suanprung Stress Test-20 (SPST-20) of the samples of the experimental group who had received the program and the sample of the control group who had not received the program. When this was evaluated after the experiment, it was found that there was a difference in the statistical significance level of 0.05. Furthermore, for the average of the three parts of the Suanprung Stress Test-60 (SPST-60), there was a difference in the statistical significance level of 0.05. For the average of the Suanprung Stress Test-20 (SPST-20) and the Suanprung Stress Test-60 (SPST-60) of the experimental group and the control group before joining the program, there was no difference.

Table 2. Information of the sample (n = 24).

Basic Information		Number (Person)	Percentage
Gender	Male	3	12.50
	Female	21	87.50
The faculty that the students were studying in	Science-Technology	11	45.83
	Science-Health	2	8.34
	Humanities-Social Science	11	45.83
The year that the students were studying in	1st Year	2	8.34
	2nd Year	13	54.20
	3rd Year	2	8.34
	4th Year	7	29.12
Average revenue per month	≤ 5,000	7	29.17
	5,001-15,000	17	70.83
The status of the parents	Parents are staying together.	12	50.00
	Parents are separated.	3	12.50
	Parents are divorced.	8	33.32
	One parent has passed away.	1	4.18
Age	The average age is 20 years old (SD = 1.063; the minimum is 18 years old; the maximum is 22 years old).		

Table 3. Comparison of the information on the stress level before and after joining the program in the same group (n = 24).

Subjects	Assessments		Pretest	Post-test	t	Asymp. Sig. (2-tailed)
			Mean ± SD	Mean ± SD		
Experimental Group (n = 12)	SPST-20	Level of stress	88.00 ± 2.92	51.75 ± 1.22	26.18	.000*
	SPST-60	Susceptibility to stress section	36.67 ± 2.23	28.66 ± 3.05	8.84	.050*
		Sources of stress	83.92 ± 4.12	63.08 ± 3.45	16.77	.010*
		Symptoms of stress	74.58 ± 10.49	48.67 ± 5.26	9.72	.000*
Control Group (n = 12)	SPST-20	Level of stress	87.83 ± 5.44	79.17 ± 6.45	8.46	.000*
	SPST-60	Susceptibility to stress section	35.83 ± 1.95	36.50 ± 1.73	-0.86	.406
		Sources of stress	87.92 ± 8.71	91.75 ± 9.35	-1.97	.074
		Symptoms of stress	79.33 ± 14.71	88.75 ± 12.81	-3.06	.011*

*p < .05

Table 4. Comparison of the information of the stress level between the samples before and after joining the program (n=24).

Test	Assessments		Experimental Group (n = 12)	Control Group (n = 12)	t	Asymp. Sig. (2-tailed)
			Mean ± S.D.	Mean ± S.D.		
Pretest	SPST-20	Level of stress	88.00 ± 2.92	87.83 ± 5.44	.093	.926
	SPST-60	Susceptibility to stress section	36.67 ± 2.23	35.83 ± 1.95	-1.44	.340
		Sources of stress	83.92 ± 4.12	87.92 ± 8.71	-0.91	.170
		Symptoms of stress	74.58 ± 10.49	79.33 ± 14.71	-3.35	.372
Post-test	SPST-20	Level of stress	55.75 ± 3.31	79.17 ± 6.45	-11.19	.05*
	SPST-60	Susceptibility to stress section	28.67 ± 3.05	36.50 ± 1.73	-7.73	.05*
		Sources of stress	63.08 ± 3.45	91.75 ± 9.35	-9.96	.05*
		Symptoms of stress	48.67 ± 5.26	88.75 ± 12.81	-10.03	.05*
*p < .05						

For the occupational performance of the university students who had received the effect of the stress, the information in this part was received from the evaluation form that the researchers had modified from the COPM evaluation form. The researchers stored the information of the sample of the experimental group and the sample of the control group before and after joining the stress management program, the results are shown in Table **5**. This showed the information of the activity that had received the effect from the stress for the first of the five important sequences (n=24).

It was found that the activity, which received the effect from the stress obtained from the COPM evaluation form that the sample reported the most and given as the first priority, was the rest and sleep activity (11 persons or 45.34%). This was followed by education, social participation, activities of daily living (ADLs) and working activities, respectively. The second priority was education (12 persons or 50%), the third and fourth priorities were ADLs, and the fifth priority was leisure.

Table 5. The information on the activity concerning the effect from the stress that was received from the COPM evaluation form (n = 24).

Occupations	1st Priority		2nd Priority		3rd Priority		4th Priority		5th Priority	
	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
ADLs	1	4.16	2	8.33	7	29.67	10	41.67	4	16.67
IADLs	-	-	-	-	1	4.16	3	12.5	4	16.67
Rest and sleep	11	45.34	2	8.33	3	12.5	2	8.33	4	16.67
Education	7	29.67	12	50.00	2	8.33	3	12.5	-	-
Work	1	4.16	1	4.16	1	4.16	-	-	-	-
Leisure	-	-	2	8.33	4	16.67	3	12.5	7	29.67
Social participation	4	16.67	5	20.85	6	24.51	3	12.5	5	20.85
Total	24	100%	24	100%	24	100%	24	100%	24	100%

Table 6. The information shows the average performance level and the satisfaction level of the occupational performance of the sample who received the effect of the stress (n=24).

Subjects			Performance					Satisfaction				
			Pretest Mean ± S.D.	Post-test Mean ± S.D.	Change (Post-Pre)	*p*	Cohen's d	Pretest Mean ± S.D.	Post-test Mean ± S.D.	Change (Post-Pre)	*p*	Cohen's d
Experimental Group (n = 12)	Occupations	1st Priority	4.25 ± 1.95	7.58 ± 0.79	+3.33	0.03	2.23	3.50 ± 2.19	8.00 ± 1.04	+4.50	0.01	2.62
		2nd Priority	4.41 ± 1.37	7.66 ± 0.88	+3.25	0.01	2.82	3.41 ± 1.92	8.66 ± 0.88	+5.25	0.001	3.51
		3rd Priority	4.50 ± 1.93	8.25 ± 0.75	+3.75	0.01	2.56	4.91 ± 1.67	8.41 ± 0.79	+3.50	0.001	2.67
		4th Priority	5.33 ± 1.43	8.58 ± 0.79	+3.25	0.01	2.81	4.83 ± 1.40	8.83 ± 1.02	+4.00	0.001	3.88
		5th Priority	5.50 ± 1.73	8.33 ± 0.77	+2.83	0.05	2.11	4.50 ± 1.44	8.91 ± 0.66	+4.41	0.001	3.93
Control Group (n = 12)	Occupations	1st Priority	4.25 ± 1.54	5.16 ± 1.26	+0.91	0.89	0.64	2.91 ± 1.88	3.75 ± 1.81	+0.84	0.93	0.45
		2nd Priority	5.41 ± 2.10	5.75 ± 1.81	+0.34	0.94	0.17	4.33 ± 2.26	4.41 ± 2.10	+0.08	0.95	0.04
		3rd Priority	5.08 ± 1.31	5.75 ± 1.65	+0.67	0.95	0.15	4.16 ± 2.28	4.33 ± 1.77	+0.17	0.95	0.08
		4th Priority	6.08 ± 1.62	5.91 ± 1.16	– 0.17	0.95	0.12	4.83 ± 2.36	4.66 ± 1.72	– 0.17	0.95	0.08
		5th Priority	5.16 ± 2.16	5.66 ± 1.61	+0.50	0.94	0.26	4.83 ± 1.99	4.75 ± 1.54	– 0.08	0.95	0.04
*p < .05												

Table 7. Comparison of the information of the average score of the performance and satisfaction of the performance in occupational performance, which received the effect from the stress between the samples (n=24).

Subjects			Performance		t	p-value	Satisfaction		t	p-value
			Experimental Group Mean ± S.D.	Control Group Mean ± S.D.			Experimental Group Mean ± S.D.	Control Group Mean ± S.D.		
Pretest (n = 24)	Occupations	1st Priority	4.25 ± 1.95	4.25 ± 1.54	0.00	1.00	3.50 ± 2.19	2.91 ± 1.88	0.69	.492
		2nd Priority	4.41 ± 1.37	5.41 ± 2.10	1.37	.183	3.41 ± 1.92	4.33 ± 2.26	-1.06	.298
		3rd Priority	4.50 ± 1.93	5.08 ± 1.31	0.86	.396	4.91 ± 1.67	4.16 ± 2.28	0.91	.370
		4th Priority	5.33 ± 1.43	6.08 ± 1.62	-1.20	.243	4.83 ± 1.40	4.83 ± 2.36	.000	1.00
		5th Priority	5.50 ± 1.73	5.16 ± 2.16	0.41	.681	4.50 ± 1.44	4.83 ± 1.99	-0.46	.644
Post-test (n = 24)	Occupations	1st Priority	7.58 ± 0.79	5.16 ± 1.26	5.60	.000*	8.00 ± 1.04	3.75 ± 1.81	7.03	.000*
		2nd Priority	7.66 ± 0.88	5.75 ± 1.81	3.28	.003*	8.66 ± 0.88	4.41 ± 2.10	6.43	.000*
		3rd Priority	8.25 ± 0.75	5.75 ± 1.65	4.75	.000*	8.41 ± 0.79	4.33 ± 1.77	7.27	.000*
		4th Priority	8.58 ± 0.79	5.91 ± 1.16	6.55	.001*	8.83 ± 1.02	4.66 ± 1.72	7.19	.010*
		5th Priority	8.33 ± 0.77	5.66 ± 1.61	5.15	.000*	8.91 ± 0.66	4.75 ± 1.54	8.57	.000*
*p < .05										

Table **6** shows the average performance level and satisfaction level of the occupational performance of the sample who received the effect of the stress. The sample rated the performance score and the satisfaction score in the activity from 1 to 10. From the information, it was found that when comparing the performance score before and after joining the program of the sample, the experimental group had a greater average score of the performance in the activity in each

sequence. Thus, this had a score of 2 or more that showed the change occurring to the clinical significance [41]. In addition, the average score of satisfaction with the performance in the activity in each sequence was greater with a score of 2 or more as well, which showed the change occurring to the clinical significance. For the part of the sample, when the control group was compared before and after the experiment, it showed no difference between the average score of the performance and average score of the satisfaction. For participant's five top-priority occupational challenges, changes on the 10-point Likert scale for performance and satisfaction ranged from 2.83 points to 5.25 points, indicating statistically significant change; a change of 2 points is considered clinically meaningful [41]. Participants also showed significant increase in time to complete the SPST-20, SPST-60 and COPM. Effect sizes for paired data are also reported in (Table **6**); small ($d \geq 0.20$), moderate ($d \geq 0.50$), and large ($d \geq 0.80$) effects [46] were found for all pre–post comparisons.

Table **7** shows the comparison of the information of the average the performance level in the occupational performance, which received an effect from stress between the samples. It was found that before the two samples joined the program, there was no difference in the average the occupational performance. After joining the stress management program, both samples had a different average performance level in occupational performance in every sequence of the activity. The average score of the performance of the experimental group was greater than the average score of the performance of the control group. As such, this had a difference in the statistical significance level of 0.05.

When comparing the average score of satisfaction on the occupational performance, which had received an effect from the stress in the samples, it was found that before and after joining the program, both samples had no difference in the average score. The sample of the experimental group had a greater average score of satisfaction on the performance level of the activity, and this was more than the average score of the control group. Both groups had a difference with a statistical significance level of 0.05 (Table **7**).

4. DISCUSSION

The studied results that were obtained from the evaluation showed the overall stress level of the samples before and after joining the program. This comprised the susceptibility to stress or fragility, sources of stress, the symptoms of stress, and the information on the performance and satisfaction in doing the activity by the sample before and after joining the program. The results of the evaluation could measure the stress management program that the researchers had developed. When conducting the statistical analysis of the information by using the parametric descriptive dependent t-test, it was found that there was a difference in the statistical significance level of 0.05 with the confidence level at 0.95. This showed the results of the changes of the stress of the samples in the Suanprung Stress Test-20 (SPST-20). The experimental group had a stress level that was reduced from a severe to a high level. For the part of the control group, the stress level was at a severe level, so there was no change. For the result of the Suanprung Stress Test-60 (SPST-60), the experimental group received the program, which changed the average score of the three parts that were reduced with a statistical significance level of 0.05. This inferred that after joining the stress management program, the Chiang Mai University students had less stress and could manage the stress to cover the part of the stress relaxation technique, manage with the occurring emotions, and adjust the thinking method.

The studied results could be debated in many aspects with the reasons for the concepts, theories, and evidence as follows: Firstly, the stress management program that the researchers developed could manage the physical symptoms that occurred from the stress. As a result of joining the program, the experimental group had a stress relaxation period. Thus, the experimental group had the opportunity to have stress relaxation whenever they joined the program. The researchers recommended that the experimental group use the obtained stress relaxation technique in daily life, as this would be able to reduce the stress symptoms, which also conformed to the research of Leungprasert [8]. This found that progressive muscle relaxation was able to manage stress in the body. Students who received progressive muscle relaxation had less stress than those students who did not receive the training. Likewise, another study supported the stress relaxation technique in which the evidence showed that the diaphragmatic breathing techniques could reduce the stress symptoms in the physical and mental stress of a person aged 8 years old [20], and progressive muscle relaxation could manage the emotions. The experimental group also had depression symptoms, anxiety, and reduced stress [24]. Hence, the stress relaxation technique with diaphragmatic breathing would help the experimental group reduce the symptoms in the physical that were created from stress.

Secondly, for the stress management program that the researchers had developed, the occurring emotions from stress could be managed with the application of the basic concept of emotional awareness according to the Vipassana-Kammatthana principle, the Four Foundations of Mindfulness. Emotional awareness would help the experimental group determine the mindfulness that is called "emotional awareness". This could see the event of many things that had happened in the real condition of the activity and would let the experimental group reflect and exchange their opinions related to the emotions that had occurred in other situations that the researchers had given the example of. In addition, the experimental group still had the opportunity in noticing and recording their own emotions that happened after joining the program by recording their own emotions in daily life. This would lead to the performance of managing their own emotions in other situations. Moreover, the experimental group would still have the understanding and realization of themselves from knowing their own emotions. This conformed to the study that found that the Vipassana-Kammatthana principle, the Four Foundations of mindfulness was able to increase the emotional intelligence in an individual's own realization [42]. Furthermore, this would result in reducing the average score of the perception of stress and the performance of having more mindfulness [43]. Hence, applying the basic concept of emotional awareness would help to manage stress the emotions.

Thirdly, the stress management program that the researchers developed could manage the concept that would lead to stress with the technique of cognitive behavioral therapy. When students of the experimental group joined the program, they had the opportunity of analyzing the relationship between the event, emotions, concept, and their behavior in the activity. This led to the search for automatic thinking, the evaluation of automatic thinking that would lead to their own stress, and the adjustment of automatic thinking that would create the stress. Additionally, the researchers distributed the worksheet to the experimental group to introduce other techniques to use in daily life and for letting them notice their ideas by recording the idea in the worksheet each time when doing the activity. Hence, cognitive behavioral therapy would help to reduce the stress level of the experimental group from the interpretation of other events in daily life, which would conform to the studied result. This found that cognitive behavioral therapy reduced the academic stress with statistical significance [39] and by reviewing the literature systematically, most of the studies gave support to the guidelines in managing stress, which would refer to the theory of thinking, behavior, and mindfulness training that had efficiency in reducing the effect of stress in university students, including the reduction of the anxiety level, depression, and the response of the cortisol, which would have an effect on the stress [37]. This would conform to the study, which found that using the stress management program by utilizing the cognitive behavioral therapy as a basis with the grouping process had efficiency in managing anxiety. This contributed to the mental strength and the perception of the general performance [36] for using the cognitive behavioral therapy that would be able to manage the thinking, which would lead to stress.

Fourthly, for the stress management program that the researchers had developed, using the grouping process *via* the activity of the psycho-educational group could allow the skill of stress management. This would help to let the experimental group learn the skill of managing stress by exchanging experiences of their stress and the experience of other member groups that the researcher had opened the opportunity to let every member participate in showing their opinion and presenting the achievement after the experimental group had brought the learning technique together to use via recording and doing the worksheet after joining the program each time. The experimental group reported that bringing other learning techniques helped to let the sample to be under stress and they could manage the stress better. Additionally, the exchange of learning with other members within the group helped to let the experimental group learn the method and bring it to use with other members, which helped the members to learn more. This also supported the concept and occupational therapy principle of using the group for the occupational therapy of the service recipient in contributing to mental health [13]. Therefore, this conformed to the study and found that the experimental group had received the stress management program in an integrated form of an advisory group together with alternative medicine, which had less stress and could be developed to manage the stress better [11]. As such, this was presented to practice the group process to be an additional strategy to create the exchange of experiences with each other and use it for the analysis and practice, which would make the group members create self-acceptance to others. As a result, this would increase self-awareness and create a flexible mindset, thus making them face the problem efficiently [40]. Hence, the group process via the psycho-educational activity was used to train the skill of managing the stress.

Finally, the stress management program that the researchers had developed would have an effect on the occupational performance of the experimental group. The experimental group showed the performance level and satisfactory level of occupational performance after joining the program. This stress management program had an effect on the occupation of the students, which was related to the idea of occupational therapy according to the CMOP-E model [17]. This was seen for the occupational performance of the individual that had to have three related elements: the personal element, environmental element, and activity element. A change in one element would result in an effect to create change in the other elements. This stress management program that the researchers had developed comprised managing stress at the physical, affective, and cognitive. After the experimental group had already joined the stress management program, the members were able to manage the stress better. As a consequence, this would have an effect on the environmental element and the activity element according to the model. This would also make the students have a greater performance in their occupational performance.

In this study, the researchers developed the stress management program and studied the results of the developed program that consisted of the principle, concept, theories, and techniques, such as the concept of occupational therapy, diaphragmatic breathing, progressive muscle relaxation, the technique of managing emotions by applying the basic concept of emotional awareness according to the Vipassana-Kammatthana principle, the Four Foundations of Mindfulness, and the cognitive behavioral therapy technique. The current studied results supported the research hypothesis after the Chiang Mai University students receiving the stress management program had reduced their stress and had occupational performance.

4.1. Limitations and Recommendations

The current study was quasi-experimental research, which was conducted according to a two-group research design. This measured the results before and after the test. The experimental group was the only group that received the program, whereas the control group lived normally. Thus, the research results showed the outcome of the stress management program. The result could be compared with those who did not receive the program.

The researcher calculated the sample size by analyzing the testing power with the G* power program. This inputted the raw information directly from past pieces of research. The results of the analysis showed that a sample consisting of 24 persons participated in this research. This research is limited to small sample size, which may lead to a limitation of references to populations. Recommendations for future research should include a larger sample size that will be able to refer to

population. The researcher used the inclusion criteria for dividing the sample, including stress levels and effect of stress on occupation, therefore, the researcher did not control gender in sample. Therefore, the researcher recommends that gender should be control and gender differences be studied for future research.

To assess the sample, an assessment tool was developed to be used for general population of all ages; since the psychometric parameters of the assessment were obtained from general population, therefore they may not be specific to the sample in this research. It is suggested that future researchers should use the assessment tools in order to check the psychometric parameters of the assessment in the sample to be studied, so that, they should be able to analyze and choose an assessment tool that is more suitable for the research.

In addition, this study was undertaken during the period of the COVID-19 pandemic that would create limitations in some aspects, such as having students join to be volunteers in the research job. The readiness of the students in joining the program was due to the teaching management according to the policy of Chiang Mai University in the form of online study. Thus, this would generate interest among the students to join the research. However, for some aspects, they could not participate due to the inconvenience of traveling to join this program.

For recommendations for future study, an experiment could be designed to compare the stress management program with the form of help or stress therapy with other techniques or methods for measuring the program, as well as compare the efficiency of the program. This could be a long-term study with a follow-up of the program and follow-up of the performance in maintaining the capacity of the skill in managing stress.

CONCLUSION

For the studied results, it could be seen that the sample of Chiang Mai University students, after receiving the stress management program of the experimental group, would have less stress with statistical significance. Thus, they would have more occupational performance with statistical significance. The result of joining the program would be different from the control group with statistical significance. Likewise, the control group who lived normally did not have a difference in stress and occupational performance before and after joining the research. Therefore, it could be stated that the stress management program that the researchers had developed could introduce a prototype of the program to apply to help solve the occurring problem of the stress of the Chiang Mai University students.

LIST OF ABBREVIATIONS

COPM	=	Canadian Occupational Performance Measure
SD	=	Standard Deviation

AUTHOR'S CONTRIBUTIONS

Natthanit Joompathong worked on the entire study and coordinated the data analysis. Wannipa Bunrayong worked on data analysis. Supat Chupradit reviewed the literature, designed the research, collected and analyzed the data, and approved the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the Human Ethics Committee of the Faculty of Associated Medical Sciences, Chiang Mai University (AMSEC-64EX-019).

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures followed were conducted following the ethical standards of the committee responsible for human experimentation (institutional and national) and with Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

A written informed consent was obtained from each participant prior to the study.

AVAILABILITY OF DATA AND MATERIALS

The data that support the findings of this study are available on request from the corresponding author [S.C].

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest, financial or otherwise.

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