Effects of Laughing Training on Stress Levels in Thai Private Office Workers

Uayart Chuchuen PhD*,
Pornphun Parnpiansil MD**, Panaree Busarakumtragul PhD***

** Department of Psychiatric Nursing, Faculty of Nursing, Srinakharinwirot University, Nakhon Nayok, Thailand*
*** In Buri Hospital, Ministry of Public Health, Singburi, Thailand*
**** Department of Physiology, Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand*

Background: *Laughing is a kind of well known alternative medicine used to treat stressful persons or depressive patients to relax. The laughing program used in this study was initially designed by Thai psychiatrists. It consists of deep diaphragmatic breathing exercises, voice expression, facial expression exercises and aerobic exercises, which are expected to promote good health.*
Objective: *To evaluate the effects of the laughing training on stress levels in Thai private office workers.*
Material and Method: *Thirty-eight subjects whose age 25-60 years were recruited to enroll in this program. They were randomly divided into two groups: 20 people for the experimental group and 18 persons for the control group. The experimental subjects participated in laughing program for 3 days/week, 60 minutes/day for 8 consecutive weeks. The program took place from June to July 2013. The level of stress was assessed using the Suanprung stress test-60 (SPST-60). The data were analyzed by descriptive statistics, t-test dependent and t-test independent with $p<0.05$ considered significant.*
Results: *After they joined the laughing program, no significant difference was found in the mean scores of the level of stress between the control and experimental groups. However, the sensitivities to the arousal events in the experimental group had a tendency to decrease.*
Conclusion: *Laughing training may be used as a tool to promote better health. There was no significant difference in the stress levels after the program was ended except a decrement tendency in the sensitivities to the arousal events. For further study, duration and intensity of the course may be adjusted for a more effective training program.*

Keywords: *Laughing training, Level of stress, Suanprung stress test*

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Laughing is a very common, happy behavior in everyday life and laughing therapy can be used as a non-medical therapy/alternative medicine. Health professionals can exert an important role in order to disseminate overall benefits of "positive therapies" while applying them in real world clinical situation[1]. Laughing training has an impact upon muscle tone. It was demonstrated that intense laughing leads to a decrease in skeletal muscle tone resulting in muscle relaxation[2]. On the other hand, stress affects health by lowering the resistance to disease and making the person more vulnerable to illness. The effect of stress on health depends heavily upon the severity of the stress level[3]. Simulated laughter techniques can be easily implemented in traditional clinical settings for health and patient care. The effective use for therapeutic purposes needs to be learned, practiced, and developed as with any other medical strategies. Practical guidelines and further research are needed to help health care professionals (and others) implement laughter techniques in their health care portfolio[4].

Some studies have shown that laughing therapy could decrease the level of stress. In Thailand, laughing therapy was created and developed by Thai psychiatrists. The program consists of deep diaphragmatic breathing exercise, voice expression, facial expression exercise and aerobic exercise. There are four positions to express the voice using sounds like "o", "ar", "uh", and "a". When the voice is expressed, several parts of body move such as facial, head, shoulders, chest wall, abdomen, hands and legs. It reinforces people's smile and humor. Stress affects one's health by lowering resistance to disease and making the person more vulnerable to illness.

Correspondence to:
Busarakumtragul P, Department of Physiology, Faculty of Medicine, Srinakharinwirot University, Sukhumvit 23, Wattana, Bangkok 10110, Thailand.
Phone: +66-84-0918989, Fax: +66-2-2601533
E-mail: panareep@gmail.com

The effect of stress on health depends heavily upon the degree of severity of the stress[3]. Up to now, no research evidence has shown the effect of laughing training on the levels of stress. Therefore, the purpose of this study was to evaluate the effects of laughing therapy in Thai office workers.

Material and Method

Subjects

After the research project was certified by an ethic committee, Faculty of Medicine, Srinakharinwirot University (No. SWEEC/EX21/2556), the study was started. Thirty-eight male and female volunteers (age 25-60 years old), worked in private offices in Bangkok, Thailand, and were selected to participate in training program by total scores from the Suanprung Stress Test-60 (SPST-60). They were divided into 2 groups by matching up pairs of subjects with the same level of stress scores, which resulted in the mean of total scores for stress tests that were quite similar. At the beginning, the experimental group and the control group had 20 subjects per group, but two subjects in the control group withdrawn from the program after a few days.

Laughing training

Laughing training is one kind of alternative medicine therapy, which emphasized relaxation and accentuated deep diaphragmatic breathing exercise. The program was run for 3 days/week, 60 minutes/day. Duration of the program continued for 8 weeks from June to July 2013. According to the training program design, the experimental group performed laughing training, but the control group took a rest.

Stress assessment instrument

To elicit stress data, the SPST-60 was used[5]. The SPST-60 contains 60 items, which are used to measure in three segments of stress: sensitivities of stress, sensitivities to arousal event, signs and symptoms of stress. Each item is composed of five rating scales including 1 to 5 in which score 1 indicated no stress, score 2 rare, score 3 sometimes, score 4 often, and score 5 almost always.

The collected data were self-reported from both the experimental and control groups before starting and after finishing the program. The level of stress was divided into 4 levels as follows: low, medium, high and extremely high level.

Statistical analysis

The data were analyzed by descriptive statistics; the t-test dependent was used to analyze pre-post tests within the experimental group as well as pre-post tests within the control group. Pre-post tests between the experimental group and the control group were analyzed by t-test independent with $p<0.05$ considered significant.

Results

The results in Table 1 illustrate an extremely high level of sensitivities of stress in both groups. No significant differences were found in mean scores of the stress levels between the control and experimental groups after finishing the program. The results are in Table 2 and illustrate an extremely high level of sensitivities of stress in the control group. No significant difference was found in mean score of the stress levels within the control group before and after the program. The results in Table 3 illustrate an extremely high level of sensitivities of stress in the experimental group. No significant differences were found between mean scores in parts of the sensitivities of stress and signs and symptoms of stress within experimental group before and after finishing program.

Discussion

The results of the study showed no difference in stress between control and experimental groups after finishing the program. Walter M et al, (2007)[6] also concluded that there was no significant effect of humor therapy compared with the standard therapy on quality of life. On the other hand, several studies did find that laughing therapy decreased stress[2,3]. In our study, stress scores were divided into three parts including sensitivities of stress, sensitivities to arousal event, and signs and symptoms of stress. At the end of the program, the sensitivities of stress in both groups were extremely high. The signs and symptoms of stress in both groups were high. However, the sensitivities to arousal event of stress in the control group were high, but medium in the experimental group (Table 1). This means that at least for this parameter (sensitivities to arousal event of stress), laughing therapy may have been effective.

Within the control group, there was no significant difference between mean scores of stress before and after the end of program (Table 2). It suggested that stress is a condition in which the human body system responds to changes in its normal balanced state. Many techniques were used to manage stress, laughing is one of the coping mechanisms. If people do not learn how to relieve stress, the level of it

would be sustained or even increase.

When we compared the stress levels of experimental group before and at the end of program, there were no significant differences in parts of the sensitivities of stress, sensitivities to arousal event, and signs and symptoms of stress. However, it was observed that the part of sensitivities to arousal event decreased from extremely high (61.10±16.22) to medium (49.26±20.01), but not significantly. It is suggested that laughing therapy may help to decrease perception of sensitivities to arousal event, such as stress from work, family, social, and personnel information (Table 3).

Table 1. Comparison of mean score of the stress level between control group and experimental group after finishing the program

Stress	Control group		Experimental group		t	*p*	df
	Mean ± SD	Level	Mean ± SD	Level			
Sensitivities of stress	34.15 (±5.65)	Extremely high	34.42 (±6.51)	Extremely high	0.13	0.80	
Sensitivities to arousal event	59.05 (±23.26)	High	49.26 (±20.01)	Medium	1.39	0.10	36
Signs and symptoms of stress	47.15 (±18.02)	High	39.05 (±14.21)	High	1.53	0.10	

The mean score of the stress level in the aspect of the sensitivities to arousal event in the experimental group is rather lower than that level in the control group after finishing the program, but no significant difference was observed.

Table 2. Comparison of mean score of the stress level within the control group before and after finishing the program

Stress	Before		After		t	*p*	df
	Mean ± SD	Level	Mean ± SD	Level			
Sensitivities of stress	34.26 (±5.18)	Extremely high	34.15 (±5.65)	Extremely high	0.05	0.90	
Sensitivities to arousal event	58.21 (±14.48)	High	59.05 (±23.26)	High	0.11	0.90	17
Signs and symptoms of stress	56.63 (±24.27)	High	47.15 (±18.02)	High	1.73	0.09	

No significant difference was found in the mean score of the stress level within the control group before and after finishing the program.

Table 3. Comparison of mean score of the stress level within experimental group before and after finishing the program

Stress	Before		After		t	*p*	df
	Mean ± SD	Level	Mean ± SD	Level			
Sensitivities of stress	34.84 (±6.10)	Extremely high	34.42 (±6.51)	Extremely high	0.18	0.80	
Sensitivities to arousal event	61.10 (±16.22)	Extremely high	49.26 (±20.01)	Medium	2.30	0.30	19
Signs and symptoms of stress	57.57 (±18.28)	High	39.05 (±14.21)	High	4.32	0.10	

The sensitivities to arousal event of the experimental group after laughing training program was rather lower than that level before training, but no significant difference was observed.

Laughing has some positive and quantifiable effects on certain aspects of health. In this era of evidence-based medicine, it would be appropriate to be used laughing as a complementary or alternative medicine in the prevention and treatment of illnesses, although further well-designed research is warranted[7]. The laughing program has shown to be an effective, cost-effective non-pharmacological therapy for cognitive impairment, mood states, and elderly depression[8]. Laughing is able to improve mood directly and to moderate negative consequences of stressful events on psychological well-being[8]. In addition, the therapeutic effects of laughing on social relationships, physical and mental health may have a role in influencing the ability of depressed patients to face the disease[9]. Stress usually stimulates hypothalamo-pituitary-adrenal axis (HPA) leading to an increase in saliva/serum cortisol level. Much more cortisol release during work via HPA will stimulate negative feedback to inhibit HPA resulting in a decrease in cortisol. Thus, this laughing training may act as a negative feedback mechanism to inhibit cortisol release[10].

Conclusion

Laughing training for 8 weeks had no significant effect on the stress levels with regard to sensitivities of stress, the sensitivities to arousal event and the signs and symptoms of stress. A decrease in the sensitivities to arousal event in the experimental group after the laughing training may be explained by the result of an increase in threshold/tolerance to respond to stress. It may be applied with routine medical treatment to improve cognitive impairment and other symptoms in physiatrist patients such as for anxiety and depression but needs further research. In addition, the duration and intensity of the training course may be adjusted to make it a more effective training program.

What is already known on this topic ?

No previous research data about the effect of laughing training have been reported.

What this study adds ?

This study showed a tendency to support the feasibility of laughing training as an alternative medicine to relieve stress levels during work in private offices because the data of the sensitivities to arousal event in the experimental groups both within groups and between groups had a tendency to decrease. Laughing training should be modified to provide an appropriate program in future for most people to become healthy with less or no stress during office hours.

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Potential conflicts of interest

None.

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ผลการฝึกหัวเราะต่อระดับความเครียดของพนักงานในบริษัทเอกชนแห่งหนึ่ง

เอื้อญาติ ชูชื่น, พรพรรณ พานเพียรศิลป์, ภนารี บุษราคัมตระกูล

ภูมิหลัง: การหัวเราะเป็นวิธีที่นิยมใช้ในการรักษาผู้ที่มีความเครียดหรือผู้ป่วยโรคซึมเศร้าเพราะเป็นวิธีที่ช่วยผ่อนคลาย การฝึกหัวเราะที่ใช้ในการวิจัยนี้ประกอบด้วยการหายใจด้วยกระบังลม การเปล่งเสียงหัวเราะ การแสดงออกทางใบหน้า และการออกกำลังกายแบบแอโรบิค ซึ่งน่าจะมีผลดีต่อการสร้างเสริมสุขภาพ

วัตถุประสงค์: เพื่อศึกษาผลของการฝึกหัวเราะต่อระดับความเครียดของพนักงานที่ทำงานในบริษัทเอกชนแห่งหนึ่ง

วัสดุและวิธีการ: อาสาสมัครเพศชายและหญิงที่มีอายุระหว่าง 25-60 ปี จากบริษัทเอกชนแห่งหนึ่ง ผ่านการคัดเลือกเพื่อเข้าร่วมโครงการวิจัยนี้ จำนวน 40 คน แบ่งกลุ่มตัวอย่างออกเป็น 2 กลุ่ม คือ กลุ่มทดลองจำนวน 20 คน และกลุ่มควบคุมจำนวน 18 คน เนื่องจากมีกลุ่มควบคุมจำนวน 2 คน ขอถอนตัวอย่างกะทันหัน โดยกลุ่มทดลองได้รับการฝึกหัวเราะ 3 วัน/สัปดาห์ ครั้งละ 60 นาที เป็นเวลาต่อเนื่อง 8 สัปดาห์ การฝึกเริ่มตั้งแต่ เดือนมิถุนายน ถึง เดือนกรกฎาคม พ.ศ. 2556 กลุ่มควบคุมและกลุ่มทดลองได้รับการวัดระดับความเครียดโดยใช้แบบทดสอบความเครียดสวนปรุง จำนวน 60 ข้อ

ผลการศึกษา: จากการศึกษาพบว่าระดับความเครียดในกลุ่มควบคุมและกลุ่มทดลองไม่มีความแตกต่างกัน อย่างมีนัยสำคัญทางสถิติภายหลังการเข้าร่วมโปรแกรมการฝึกหัวเราะเป็นเวลา 8 สัปดาห์ แต่ความไวในการตอบสนองต่อเหตุการณ์ที่เป็นสิ่งกระตุ้นให้เกิดความเครียดในกลุ่มทดลองมีแนวโน้มลดลงแต่ไม่มีนัยสำคัญทางสถิติ

สรุป: การฝึกหัวเราะที่ใช้ในการศึกษาครั้งนี้อาจจะสามารถใช้ร่วมกับการรักษาที่แพทย์แผนปัจจุบันให้อยู่แล้วเพื่อเป็นเครื่องมือช่วยในการรักษา ได้แก่ ผู้ป่วยที่มีอาการหลงลืม ผู้ป่วยที่มีปัญหาทางจิตที่มีอาการวิตกกังวลและอาการซึมเศร้า เพราะการฝึกหัวเราะอย่างต่อเนื่องเป็นเวลา 8 สัปดาห์ มีผลทำให้ความไวของการตอบสนองต่อระดับความเครียดและสิ่งเร้าที่มากระตุ้นลดลงแต่ไม่มีนัยสำคัญทางสถิติ การศึกษาต่อไปผู้วิจัยควรจะเพิ่มเวลาและความหนักในการฝึกให้มากขึ้น