

The Effect of Yoga on Emotion Regulation

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Abstract

Emotions affect human life. Emotions are the quick answers to individual reactions toward various situations, either pleasant or unpleasant. Unpleasant or negative emotions may affect an individual's activities. Therefore it would need some skills to reduce negative emotions by regulating them. Yoga is a type of physical exercise which may affect the regulation of emotions. This study aimed to examine the effects of yoga on emotion regulation. The method used in this study was the randomized experiment design applied to the experimental group (8 people) and the control group (9 people). The subjects in the experimental group were given two hour yoga exercise every day for one week period. The Emotion Regulation Scale was used as the measurement tool. Once the intervention had been completed, the scores of the experimental group were compared to that of the control group using mixed-design analysis of variance (Mixed Design ANOVA). The study results indicated that the emotion regulation of the experimental group was significantly higher than that of the control group ($F=10.315$, $p=0,006$, $p<0,01$). Based on this finding it was concluded that the emotion regulation skill was improved by doing yoga exercise. As an implication, yoga may be used to improve emotion regulation skill.

Keywords: Emotion, Emotion Regulation, Yoga

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Introduction

Interpersonal relationships in the community are evident in how individuals position themselves in viewing others and how they are aware of their own feelings or emotions. These make them aware that other people also have emotional side as they do. Emotions are the quick answers to individual reactions toward various situations, either pleasant or unpleasant ones. Emotional reaction sometimes occur concurrently with the external stimulus, for example a fear which occurs when seeing a snake, and sometimes they occur after the stimulus is encountered, for example an anger which occurs after hearing bad commentary from others (Barret & Salovey, 2002). According to Barret, Gross, Christensen, and Benvenuto's study (in Manz, 2007), negative emotions may affect an individual's activities.

Such negative emotional reactions may serve as learning material to regulate emotions. Emotion regulation is the capacity to manage arousal to adapt and to pursue goals effectively. Arousal is a state of alertness or an activation which may reach quite high degree, for example anger, fear, and happiness. According Thompson, emotion regulation may also be defined as the capacity to evaluate and change emotional reactions into behaviors appropriate to the happening situation (Garnefski & Kraaij, 2006). The more mature an individual, the more capable he/she would be to regulate his/her emotions. Such individuals are able to decide on the extent of attention they should put on certain feeling and know clearly how that feeling may influence them in their interpersonal interactions in the social environment. Therefore, an individual's emotion regulation is considered optimal when he/she is able to regulate and understand his/her emotions without exaggerating nor minimizing the emotions he/she feels (Barret & Salovey, 2002).

According to Gross (1998), emotion regulation is a situation when an individual can identify the kind of the feeling he/she is experiencing, when he/she is experiencing them, and know how to express the feeling he/she is experiencing. Eisenberg (2000) defined emotion regulation as the process of initiation, maintenance, and modulation and the intensity or duration of feelings and emotional process that has to do with physiology. They play some role in pursuing some goal. According to Gross, the merit of an individual capable of emotional regulation is that he/she is able to complete a task satisfactorily and meticulously and to recover from emotional stress. Emotion regulation is divided into two parts: emotion regulation in the beginning of action (*antecedent-focused emotion regulation/ reappraisal*) and emotion regulation at the end of action (*response-focused emotion regulation/ suppression*). Initial regulation consists of changes in the thinking about the situation in order to reduce the emotional impacts, while final regulation blocks the emotional indications outputs (Barret & Salovey, 2002).

Appropriate emotional regulation mechanism may cause an individual accepted in a community. This is evident in his/her ability to know the emotion he/she or another individual is experiencing. An individual capability to monitor, evaluate, and modify emotional reactions and express appropriate emotions and feelings in his/her everyday life is called good emotion regulation (Salamah, 2008). On the contrary, bad emotion regulation happens when an individual is not able to express the feeling he/she is experience and behave overactingly in expressing his/her emotions (Barret & Salovey, 2002). The effects of bad emotion regulation may include impaired

interpersonal relationship, withdrawal from environment, anxiety, depression, increased level of aggression, and attention difficulties (Neidji, 2010). Matthew (2008) found that anxiety among normal people can be coped with emotion regulation. In this particular study, the emotion regulation was done with three ways: relaxation, involvement of senses (touch, taste, smell, sight, and hearing) in doing activities, and ability to express felt emotions. A technique used to do these three things is breathing exercise. Incorrect breathing may lead to short and shallow breaths which may lead to anxiety which may have impacts on other physical organs. Breathing exercise involves diaphragm and big muscle in the stomach instead of chest breathing which involve chest and shoulder. Breathing exercise was used in that study to deal with anxiety in normal people. The results indicated that emotion regulation was helpful to lower anxiety.

A breathing study was also conducted by Retnowati and Widiastuti (2010) with asthmatic patients. Patients with asthma were given emotion regulation training. Emotion regulation training was chosen to improve both physical and mental health protections of asthmatic individuals. The strategy chosen to regulate emotion included relaxation training, breathing exercise, and self-monitoring with the help of emotion journal. The study showed that relaxation and breathing exercise as emotion regulation techniques were helpful in improving emotion regulation of asthmatic patients.

The application of relaxation, breath exercise, and activities which involves the five senses to regulate emotions were also performed with physical exercise. In practice, the physical exercise gave more emphasis on mind, feeling, and body improvement (Sindhu, 2008). A physical exercise which uses mind and soul management concept is yoga. Yoga is a combination of body posture, breathing control, mental concentration, and relaxation which is developed by train body posture, breath control, concentration, and relaxation (Zipkin, 1985). Yoga also contains a life guide toward health, peace of mind, and happiness (Sindhu, 2008).

Yoga focuses on *asana* (posture), *pranayama* (breath exercise), *bandha* (“body locks”), *mudra* (gesture), and deep relaxation. Yoga may improve an individual’s physical as well as mental condition (Sindhu, 2008). Yoga is different from nonyoga exercises (for example aerobics). The movements in nonyoga exercises tend to be sporadic and fast and give strong emphasis on muscles. Nonyoga movements are designed to get athletic body shape and no necessities to give special attention to breathing. Movements in yoga, on the other hand, tend to avoid too strong and sudden muscle movements and performed with full awareness of breath in such a way that mental strength improves and mind becomes more focused and shrewd (Rohimawati, 2008).

Based on the reference review, the hypothesis of this study was as follows: There is significant difference between university students treated with yoga and those who were not treated with yoga.

Method

This study was a randomized experiment which used pretest-posttest control group design. The subjects in this study were divided into two groups: experimental group and control group. The experimental group was the group which received yoga treatment, while the control group did not receive yoga treatment.

Eight students and nine students of the Faculty of Psychology Gadjah Mada University enrolled in the academic year of 2010/2011 were included in the experimental group and the control group, respectively.

In the process of study, the experimental group received treatment in form of yoga training, while the control group was treated as a waiting-list group and would receive yoga training the timing of which would be determined later. Yoga participants may be absent from yoga sessions for 2 days at the maximum, otherwise they would be dropped as study subjects.

The implementation of study was done in a room in Gadjah Mada University environment. Each session lasted for two hours. The yoga intervention included 7 sessions each of which consisted of warming-up, movements (*asanas*), and meditation. According to Jannah's (2004) study, meditation may influence an individual psychologically if it is performed for 7 sessions consecutively.

The data were gathered using the Emotion Regulation Scale which was an adaptation of similar scale used by Megawati (2003) with $r = .902$. This scale contained items aimed to measure emotion regulation level.

The scale consisted of favorable and unfavorable statements each of which had for options ranging from highly highly unapplicable, unapplicable, applicable, and highly applicable and representing the three aspects of emotion regulation:

1. Emotional appraisal. Emotional appraisal is the ability to identify one's own emotion as well as other's emotion, to interpret the meaning of different emotions and feelings, and to understand complex feelings and emotional experience. The emotional appraisal aspect is implied in two things: differentiation of emotions and choice of coping method.
2. Emotion regulation. Emotion regulation is the effort to regulate moods in order to achieve emotionally balanced state. This aspect is divided into two: emotional control and emotional stability.
3. Emotional expression. Emotional expression is the process of expressing feelings and emotions either through statement, facial expression, or behavior. This aspect is divided into two: expression toward others and expression toward oneself or other surrounding things.

The data analysis used Mixed Design ANOVA to see within-subject interaction, i.e. pretest and posttest scores comparison, and between-subject interaction, i.e. experimental and control groups comparison. The Mixed Design ANOVA is also commonly referred as 2x2 Mixed ANOVA. The calculations of scores were made with computer using *Statistical Product and Service Solutions* (SPSS) 16.

Results

Data in forms of Emotion Regulation scores were gathered from two measurements measurements – pretest and posttest with the experimental group and two pretest and posttest with the control group. Data from pretest and posttest both with the experimental and the control group are shown in the following table.

Table

Pretest and Posttest Data of the Experimental Group and the Control Group

The Experimental Group				The Control Group			
Subject	Pretest	Posttest	Increase	Subject	Pretest	Posttest	Increase
1	43	52	9	1	57	55	-2
2	44	53	9	2	42	53	11
3	57	65	8	3	52	51	-1
4	50	59	9	4	57	53	-4
5	49	56	7	5	56	52	-4
6	45	48	3	6	49	43	-6
7	48	49	1	7	45	43	-2
8	57	58	1	8	54	54	0
<i>Mean</i>	49,125	55	5,875	9	54	54	0
				<i>Mean</i>	51,778	50,889	-0,889

The data analysis indicated that the experimental group showed very significant increase in emotion regulation after receiving yoga exercise treatment ($F= 10.315$; $p=0.006$). Therefore the hypothesis was accepted. There was difference in emotion regulation between those university students who received yoga exercise treatment and those who did not.

The Mixed Design ANOVA showed mean difference of 5.875 in the experimental group. This positive mean difference indicated that the mean of posttest scores was greater than that of pretest scores, which meant that there was some increase in the emotion regulation and the p score of .002 ($p<.01$) indicated that the increase of the emotion regulation in the experimental group was very significant.

The Mixed Design ANOVA showed mean difference of -.889 in the control group. This negative mean difference indicated that the mean of posttest scores was smaller than that of pretest scores, which meant that there was some decrease in the emotion regulation, but the p score of .0548 ($P>.05$) indicated that the decrease of the emotion regulation in the control group was not significant.

Discussion

This study was done to see the effect of yoga on emotion regulation. The Mixed Design ANOVA indicated that in this study yoga as treatment had influence on emotion regulation of the experimental group.

Its contribution to the emotion regulation increase in the experimental group was .495 which meant that yoga caused a 49.5 percent increase in the emotion regulation.

Wheeler and Wilkin's (2007) study suggested that the more often an individual practices yoga in her/his daily life, he/she would become calmer and his/her stress level lowered. This study confirmed Jannah's (2004) study which demonstrated that yoga which included meditation might affect psychological functioning in that it improved concentration and emotion regulation. In addition, this study also corroborated Zipkin (1985) who suggested that yoga may improve emotion regulation. In the practice of yoga subjects were asked to combine physical posture, breath control, mental concentration, and relaxation during the exercise. This followed yoga procedure which starts with warming-up, *asanas*, and relaxation at the end of each session.

Yoga may improve emotion regulation because during the exercise subjects were asked to concentrate on their breathing (inhaling and exhaling). This is in accordance with Kaminoff (2010) who stated that yoga may improve an individual's emotion regulation because in yoga exercise he/she is asked to be constantly aware of his/her breath.

Focusing on breath during yoga exercise is in line with Sindhu (2008) who said that the correct technique of breathing use *Dhiirga Swasam* (basic breathing technique of yoga). Subjects in this study used *Dhiirga Swasam* when practicing yoga. In yoga exercise, in each *asanas* subject was trained to use abdominal breathing by inhaling air (oxygen) into abdominal area and exhaling it (carbondioxyde) from the lower part of lungs up to the ribs and finally to the whole chest (Sindhu, 2008).

According to Affandi (2007) yoga may improve emotion regulation because yoga exercise includes meditation which may lower an individual's anxiety and leads to calm and positive feeling which in turn makes the whole body more relaxed. Moreover, yoga exercise may improve emotion regulation because in addition to breathing exercise, the participants also do body posture exercise (Sindhu, 2008). This finding was in line with Karminoff's (2010) assertion that in the body posture exercise (*asanas*) there are calming movements which ease the tension in each part of body and mind.

Another thing that may cause yoga has contribution to the increase of emotion regulation scores was that because the exercise was performed seriously. Such seriousness was indicated by routine presence and high degree of attentiveness during the consecutive 7 days. The subjects initially had difficulty in following the instructions from the instructor because yoga movements were new to them, but after the second day they could follow the instructions from the instructor with little difficulty. This was reflected in the report of observation done every day during the yoga sessions.

Based on the daily evaluation form filled by the participants it could be inferred that five out of the eight yoga participants felt calmer after doing yoga exercise. This was because there is a movement in yoga which put great emphasis on relaxation, *shavanasana*. This particular movement asks the participants to concentrate on their breathing (Sindhu, 2008). Three out of the eight yoga participants indicated that they felt the benefit of yoga because it makes their body more relaxed and enables them to think positively.

From the change in emotion regulation scores Subject 1 experienced the greatest increase in emotion regulation with 9 points increase, while Subject 7 experienced the smallest increase with 1 point increase only. This was because during the exercise Subject 1 always followed the movements according to the instructions given by the instructor. Response to the exercise was also most felt by Subject 1. According to the daily observation form of Subject 1, it seemed that this particular subject was increasingly enjoying yoga exercise and felt calmer afterwards. Unlike Subject 1, Subject 2 sometimes made mistaken movements during yoga exercise. This particular subject said enjoying yoga, but sometimes did not feel any difference afterwards.

There are several things worth noting from this present study in terms of internal validity (Shadish, Cook, & Campbell, 2002). These include:

1. Testing factor. Testing factor may happen when the researcher makes repeated measurements (pretest and posttest) with the same measurement tools. The measurement tool in this study was used both in the pretest and posttest. This allowed the subject to learn from the previous test when taking the second testing. Therefore the future studies should use different (but parallel) measurement tools for pretest and posttest. In addition, the time distance between the first and the second data collections should longer than what the researchers did in this study (should be more than seven days) to reduce the effect of testing factor.
2. Interaction factor between maturity and selection. This factor would have influence if the selected participants for the experimental group happen to have higher degree of maturity than the participants for the control group so that the resulting increase in emotion regulation in the experimental group might due to higher degree of maturity of experimental group before yoga exercise treatment was given. And this very factor was not controlled in this study.
3. Historical factor in forms of events outside the treatment that happened between the first test and the subsequent test during the study. Events outside yoga exercise could not be control, and they likely had influence on the increase of emotion regulation.

Conclusions

Based on study results and discussions, the following conclusions were drawn:

1. There was very significant difference in emotion regulation between the experimental group and the control group. In the experimental group, the increase of emotion regulation was very significant.
2. Yoga may be used to improve emotion regulation.

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