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### The emotion regulation training to improve quality of life in patients with hypertension

Kartika Mustafa,<sup>1</sup> H. Fuad Nashori,<sup>1</sup> Yulianti Dwi Astuti<sup>1</sup>

<sup>1</sup> Faculty of Psychology and Sociocultural Sciences, Islamic University of Indonesia

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#### ABSTRACT

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##### \*Corresponding author:

[fuadnashori@yahoo.com](mailto:fuadnashori@yahoo.com)

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**Background:** Quality of life is an indicator of health. Quality of life is used to evaluate the physical and psychosocial effects of an illness suffered by a person, including a person's knowledge and perception of the illness. In order to achieve optimal quality of life, patients with hypertension were reported frequent use defense mechanisms to repress emotions or regulate emotions.

**Objective:** The aim of this study was to investigate the effect of emotion regulation training to improve the quality of life among patients with hypertension. The hypothesis of this study stated that there was an influence of emotion regulation training to quality of life among patients with hypertension.

**Methods:** The quality of life was measured by using quality of life scale based on aspect from WHOQOL-BREF (1998). An experimental method used was a pre and post-test control group design. Data were analysed by using Mann Whitney U.

**Results:** The researchers found that there was no difference in the level of quality of life between the experimental group and the control group were not given training. However, the results of this study indicate that the quality of life scores in the experimental group increased during follow-up ( $p=0,002$  ( $p<0,05$ )). This suggest that quality of life among experimental group has increased compared to the control group, and consequently it accepted the hypothesis.

**Conclusion:** Emotion regulation strategies can helped a person to cope the life stress that can be associated with psychological distress and quality of life.

**Latar Belakang:** Kualitas hidup merupakan suatu indikator dari kesehatan. Kualitas hidup digunakan untuk mengevaluasi dampak fisik maupun psikososial dari suatu penyakit yang diderita seseorang, meliputi pengetahuan dan persepsi seseorang terhadap penyakit yang diderita. Dalam upaya mencapai kualitas hidup yang optimal, penderita hipertensi dilaporkan sering menggunakan mekanisme pertahanan dengan menekan emosi atau dengan meregulasi emosinya.

**Tujuan:** Penelitian ini bertujuan untuk mengetahui pengaruh pelatihan regulasi emosi terhadap peningkatan kualitas hidup penderita hipertensi. Hipotesis penelitian ini adalah ada peningkatan kualitas hidup pada kelompok eksperimen dibandingkan kelompok kontrol.

**Metode:** Kualitas hidup diukur dengan menggunakan aspek-aspek dalam WHOQOL-BREF (1998). Penelitian ini menggunakan metode pra dan paska tes kelompok kontrol. Analisa data menggunakan Mann Whitney U.

**Hasil:** Tidak terdapat perbedaan antara tingkat kualitas hidup pada kelompok eksperimen dengan kelompok kontrol yang tidak mendapatkan pelatihan regulasi emosi pada saat paska tes. Namun, skor kualitas hidup pada kelompok eksperimen meningkat pada saat tindak lanjut ( $p=0,002$ ,  $p<0,05$ ).

**Kesimpulan:** Strategi regulasi emosi dapat digunakan individu untuk berdamai dengan stres kehidupan

*yang bisa berhubungan dengan distres psikologis dan kualitas hidup.*

## INTRODUCTION

Hypertension is a major worldwide health problem. This is related to the high prevalence and associated with an increased risk of cardiovascular disease. From 1999 to 2009, the death rate from hypertension increased by 17,1% with the number of deaths from complications of hypertension reached 9,4 million per year. Hypertension causes death in 45% of patients with heart disease and 51% of deaths in patients with stroke in 2008.<sup>1</sup>

The prevalence of hypertension in Indonesia amounted to 26,5% in 2013, but were diagnosed by health personnel and/or a history of taking medication is only 9,5%. This indicates that the vast majority of cases of hypertension in people not yet diagnosed and affordable health care.<sup>2</sup> Indonesian health data profiles in 2011 mentioned that hypertension is one of the 10 diseases with the highest inpatient cases at the hospital in 2010, with the proportion of cases 42,38% men and 57,62% women and 4,8% of patients died.<sup>3</sup>

Hypertension and other cardiovascular diseases in hospitals in Yogyakarta is the highest cause of death.<sup>4</sup> The results of basic medical research in 2013 put Yogyakarta as a third the number of cases of hypertension in Indonesia based on the diagnosis and or a history of taking the medication. This is an increase compared to the results of basic medical research in 2007, where DI Yogyakarta ranks tenth in the number of cases of hypertension based on diagnosis and or a history of taking medications.<sup>2</sup>

The prevalence of hypertension in men and women are different depending on age. On the subject of the age of 25-54 years, hypertension is more common in men. However, in subjects with more than 54 years of age, hypertension is more common in women.<sup>5</sup>

Calvalho et al. reported on hypertension risk factors include heredity, age, ethnicity, obesity, stress, sedentary lifestyle, alcohol consumption, gender, contraceptive use and excessive salt intake. Another factor is the social and physical.<sup>6</sup> In line with this, research Isfandari also obtain

the result that the pattern of risk factors of hypertension by sex and emotional distress. Indirectly, stress can lead to hypertension.<sup>7</sup> Increased blood pressure and the repeated stimulation of the nervous system producing hormones refinement blood vessels caused by stress can cause emotional distress that impact on hypertension. Factors that influence blood pressure through stress is the pressure of work, social and emotional distress.

Emotional stress can be a trigger factor of cardiovascular disease, including hypertension. The important role of emotional stress in their influence on disease increased in recent years. Irritability, anxiety, worry, depression and overall emotional reactions associated with negative health.<sup>8</sup>

Hypertension affects both men and women. The limits age of approximately 45 years is the limit age premenopausal/ menopause in women. Women who are no longer having periods at higher risk for cardiovascular disease due to decreased estrogen levels. As a result of menopausal women and men with an unhealthy lifestyle is very risky hypertension.<sup>5</sup> Furthermore, associated with emotions that are owned by men and women, there is the differences in the characteristics of emotion. This is caused by the difference hormonal and psychological conditions between men and women.<sup>9</sup>

The load carried by hypertension because hypertension is associated with 30% of the causes of death in the world. Hypertension affects the vitality of the sufferer, impact on social functioning, mental health and psychological functioning. A lot of people with hypertension experience headaches, dizzy, depressed, anxious and experience fatigue. Therefore, hypertension has a significant impact on quality of life.<sup>10</sup>

The symptoms are felt by people with hypertension are headaches/ heaviness in the nape of the neck, vertigo, heart palpitations, fatigue, blurred vision, ringing in the ears, nose bleeds, irritability.<sup>11</sup> These symptoms can be classified as a barrier that meets aspects the quality of life, physical health like headaches, and vomiting. Psychological aspects like irritability and fatigue, and the impact on social and

environmental aspects. These problems indicate a decreased quality of life.

Quality of life, according to the WHO definition, is the individual's perception of its existence in life in the context of culture and value systems in which he lives. So in large scale covering various sides of a person's life both in terms of physical, psychological, personal beliefs, and social ties to interact with their environment. Quality of life related to health (health related quality of life/ HRQOL) include aspects of physical, psychological, and social, of the health sector which is influenced by personal experiences, beliefs, expectations, and perceptions.<sup>12</sup>

Quality of life is an indicator of health. Quality of life is used to evaluate the physical and psychosocial impact of an illness suffered by a person, including a person's knowledge and perception of the illness.<sup>8</sup>

Patients with hypertension reported frequent use emotion repression as defense mechanisms as regulate emotions.<sup>13</sup> Emotion regulation are ways to regulate emotions. Emotion regulation is the process of arranging the impact of individual emotions, when these emotions arise, and how they experience in expressing emotions.<sup>14</sup>

Based on the results of these studies, the emotional pressure that becomes a risk factor for hypertension is important to get attention. Patients with hypertension should be able to manage the emotions that arise to them, so that quality of life is viewed from the aspect of physical health, psychological health, and social relationships with the environment can be improved.

The results of Ciuluvica et al. research was found that the emotion regulation has a positive relationship with the quality of life of patients dermatologist. There are significant differences between the groups using mechanisms of emotion regulation and the groups with no using mechanisms of emotion regulation. By emotion regulation, patient can communicate his emotions so well so that his health condition also increases.<sup>14</sup>

Emotion regulation helps people with hypertension express negative emotions that come up with a better way. Controlled Emotions also have an impact on controlled blood pressure,

so that the quality of life of patients with hypertension will increase. As expressed by Maule et al. that the regulation of emotions with cognitive reappraisal strategy is a way to change his mind about certain situations. Cognitive reappraisal is a strategy that is more adaptive emotion regulation, and positively associated with quality of life.<sup>15</sup>

The purpose of this study was to determine the influence of emotion regulation training to improve the quality of life of patients with hypertension. Emotion regulation provides a way for people with hypertension to communicate emotions or express his emotions well. It causes emotional owned can be channeled in a good way by no longer pressing or emotional repression or channel it in a way that is not appropriate.

The hypothesis of this study was the difference in the quality of life of hypertensive patients between before and after the training of emotion regulation. Patients with hypertension who received training emotion regulation have a higher level of quality of life compared to patients with hypertension who were not given the training intervention emotion regulation.

## **METHODS**

### **Subject**

The subjects were hypertensive blood pressure above 140/90 mmHg and has no complications with other diseases, age  $\geq 35$  years, have a quality of life scores demonstrated by WHOQOL-BREF scale from low to moderate, able to read and write, and are willing to attend three times meeting in emotion regulation training intervention. Emotion regulation training was implemented in three meetings

### **Method of collecting data**

Measuring instruments used in this study was a quality of life scale WHOQOL-BREF.<sup>12</sup> Researchers also make observations and interviews on the subject of research.

### **Data Analysis Techniques**

Data analysis techniques in this research using quantitative and qualitative data analysis. Quantitative analysis using non-parametric statistical methods, to see the difference between

the experimental group and the control group. Given the sample size used in this study is small, namely the research subjects in the experimental group amounted to less than ten people. Non-parametric data analysis was performed using SPSS 16.0 for Windows.

Qualitative data analysis was performed with individual interviews which aims to get the direct expression of the subject in the form of changes

experienced during the intervention process (training of emotion regulation). Analysis of qualitative data is obtained through descriptive data analysis by processing the data from the observation and evaluation form the subject of the statement. Interviews and observations conducted to determine the impact of training on each subject.

## RESULTS

Table 1. Description of research data

Group	Name	Pre-test	Post-test	Follow up	Gained Score 1 (pre-post)	Gained Score 2 (post-follow up)	Gained Score 3 (pre-follow up)
Experiment	BJO	06	63	82	-57	-19	-76
	MAR	06	37	18	-31	19	-12
	RAT	63	44	50	-81	-6	-87
	SUP	19	63	87	56	-24	32
	NGA	13	76	88	-63	-12	-75
	SAR	12	19	63	-7	-44	-51
	LGI	88	00	00	-12	0	-12
	PON	94	06	25	-12	-19	-31
Control	WAH	88	82	76	6	6	12
	KAR	12	12	75	0	37	37
	PDI	19	213	213	6	0	6
	PNO	19	200	188	19	12	31
	RUS	20	269	156	-49	113	64
	MUR	93	176	163	17	13	30
	TUM	06	212	169	-6	43	37
	REB	19	225	164	-6	62	56

Tabel 2. Description of statistics

	Experiment group				Control group			
	Min	Max	Average	SD	Min	Max	Average	SD
Pre-test	163	219	200,1	18,1	188	220	209,5	12,7
Post-test	163	276	226,0	36,6	176	269	211,1	28,6
Follow up	187	288	239,1	37,4	156	213	175,3	18,11

Tabel 3. Differential test by using quality of life scale score

	Z	P
Pre-test	-1,222	0,222
Post-test	-0,894	0,371
Follow up	-3,048	0,002

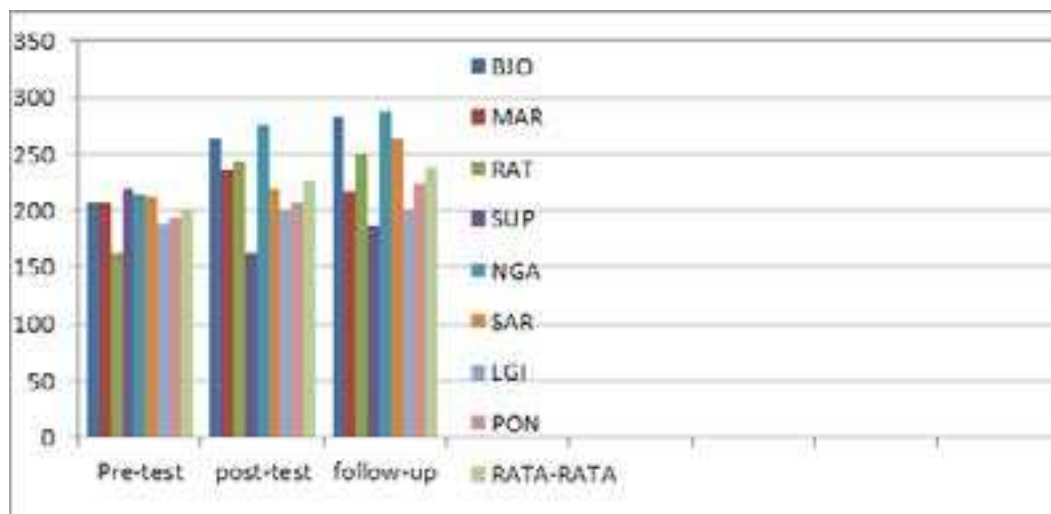


Figure1. Image of changes in scores at pre-test, post-test and follow-up experiment group

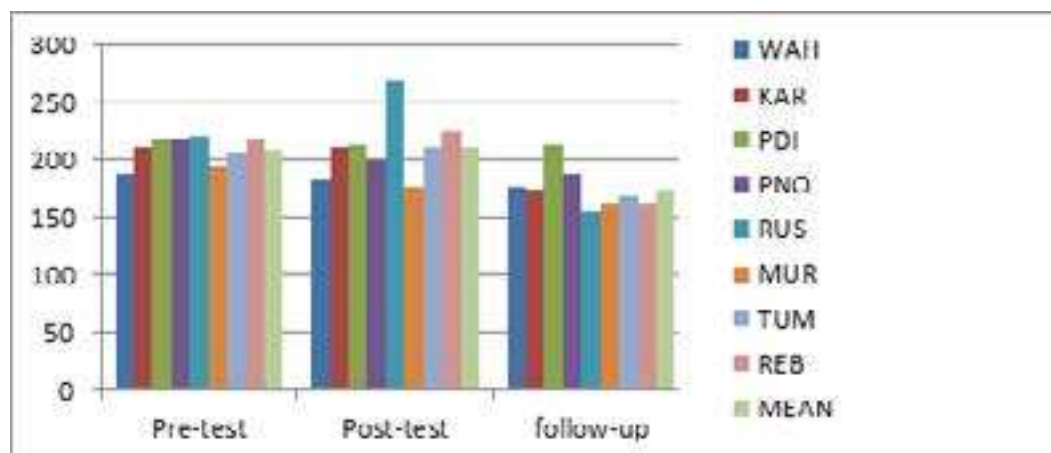


Figure2. Image of changes in scores at pre-test, post-test and follow-up control group

## DISCUSSION

Based on the analysis, pre-test scores showed no difference in quality of life between the experimental group and the control group with a significance of  $p = 0,222$  ( $p > 0,05$ ). This is consistent with the assumption that before getting intervention, anxiety scores entire subject is in the same category (the category of being). Post-test data analysis showed that there was no difference in quality of life between the experimental group and the control group during the post-test with a significance value of  $p = 0,371$  ( $p > 0,05$ ). This is not in accordance with the previous assumption that after receiving the intervention, the experimental group experienced a change in quality of life scores.

However, these data suggest that quality of life scores decreased slightly but remains the same category, namely the medium category. Furthermore, analysis of follow-up data show that there is a difference in quality of life between the experimental group and the control group during the follow-up. Score is said to be no difference if the value of  $p < 0,05$ , significant value of  $p = 0,002$  ( $p < 0,05$ ).

The results of data analysis using the Mann Whitney U in the experimental group, the mean change score of quality of life, from 200,1 during the pre-test to 226 during the post-test. Both of these figures saw an increase though still within the same category (the category of being). In the control group, a change in quality of life scores,

from 209,5 during the pre-test increased to 211,1 during the post-test. Although the numbers increase, the increase in scores in the control group still belongs to the category of being. The analysis results also showed that after being given training emotion regulation, subjects in the experimental group experienced an increase in the mean score of the quality of life (though still in the same category), while the group that did not receive therapy, balanced quality of life is enhanced, but the average score was declining (though still in the same category).

Once the training process is done, the experimental group was given the advanced measurement to see how far the subject on the group apply what they have given on training in everyday life. Scores pre-test, post-test and follow-up has increased to follow-up on five subjects (one subject in middle category, and four subjects at the high category). One subject experienced a decline in scores when the post-test and increase his score during follow-up but still in the same category (the category of being). One subject experienced an increase in the current post-test and decreased during follow-up, but still in the same category (the category of medium), and one subject experienced an increase in the current post-test but still in the same category (the category of medium) and the score remained during follow-up.

Nevertheless, analysis of the data showed a mean score of quality of life in the experimental group moves up from 226 (post-test) to 239,1 (follow-up). This score indicates that the training effect is still there within two weeks after the training is completed. Scores pretest, post-test and follow-up in the control group decreased from 211,1 (post-test) to 175,4 (follow-up). This score indicates that quality of life in the control group were decreased.

Based on the research and analysis of these data, the researchers found that there was no difference in the level of quality of life between the experimental group and the control group were not given training. However, the results of this study indicate that the quality of life scores in the experimental group increased. In addition, this study also shows that there are differences in the level of quality of life in the experimental

group and the control group during the follow-up ( $p=0,002$  ( $p<0,05$ )). This suggests that emotion regulation training as an interventionable to improve the quality of life of patients with hypertension. In addition, the results also prove that emotion regulation training can lower the blood pressure of hypertensive patients.

The results support previous research conducted by Li et al., Ciuluvica et al., and Pervichko et al. which states that the regulation of emotions can improve the quality of life.<sup>13,14,17</sup> Koole (2009) explains that the regulation of the emotional ties will be the formation of the mental health, physical health, satisfaction in relationships and performance.<sup>18</sup> Gross (Koole 2009) describes in emotion regulation, individuals will improve, manage, or reduce the positive emotions and negative emotions.<sup>18</sup> Emotion regulation helped change the emotional response that may occur at various emotions of the individual, if he has the emotion, how the experience and how to express it.

Individuals cope with problems in his life by coping. Coping is an individual effort (both behavioral and cognitive) to manage unpleasant circumstances or challenges they are trying. All these coping efforts can be classified as emotion regulation. Li et al. describes the emotion regulation strategies used individual to come to terms with the stress of life that can be associated with psychological distress and quality of life.<sup>17</sup>

Emotion regulation strategies most commonly used are cognitive reappraisal and expressive suppression. Through cognitive reappraisal, there is a change of mind on the situation, while the expressive suppression occurred expression of emotions and unusual behavior. Therefore, both the emotion regulation strategies have a different relationship with quality of life.<sup>17</sup>

Cognitive reappraisal is an emotion regulation strategy that more adaptive than the suppression.<sup>15</sup> This is related to what happens in patients with hypertension who participated in the training. Previously, patients with hypertension are known more pressing its emotion. In fact, suppressing negative emotions such as sadness may increase the activation of the sympathetic nerves of the cardiovascular system, which also increases

the systolic and diastolic blood pressure.<sup>19</sup> Other emotion regulation strategies, namely cognitive reappraisal, helping people with hypertension control his blood pressure.

Based on the research results, the changes on the subject occurred after the measured quality of life during follow-up. Meanwhile, during the post-test changes the level of quality of life for the research subjects, but still within the same category. This happens because the cognitive reappraisal materi given at the last meeting and the materi about change your negative emotions into positive, whereas cognitive reappraisal strategy is based on previous studies are emotion regulation strategies are positively related to improved quality of life. After the training is over, the subjects try to change the negative emotions by learning to turn them into positive emotions with a more positive perspective on an issue. Cutuli describes the cognitive reappraisal is changing the way of thinking of the emotions that appear at an event.<sup>20</sup> This method has a short-term impact, cognitive, and social consequences that are healthier. Individuals who use cognitive reappraisal in regulating emotions has a social function and well-being with a healthy pattern.

## CONCLUSION

The results showed that emotion regulation training can improve the quality of life in patients with hypertension. The group receiving the training of emotion regulation have a higher quality of life than the group that did not receive training.

## RECOMMENDATIONS

This research has been cultivated as well as possible, but it is possible there are still some shortcomings. Based on the results of implementation and evaluation, researchers say a few suggestions, including the following:

On the next researcher. Training emotion regulation can improve the quality of life of patients with hypertension. This can be a reference for subsequent research in order to develop the training of emotion regulation. Researchers interested in conducting similar studies could also consider the cultural elements associated with a person's emotions. Because the

study was conducted in a village where people are more accustomed to using the local language (Javaness language) as an everyday language, it is important to note some of the terms in the regulation of emotion to be reworded to more modest or even using the local language in order to more easily be accepted.

On the subject, according to the result of emotion regulation training process, not all subjects can gets directly benefit from the training provided. Some subjects are known to experience a loss of quality of life due to the problems encountered nor find a solution. Subject should increasingly recognize itself particularly identify ways when facing problems so that each subject can better understand the advantages and disadvantages of each.

Hypertensive disease is also caused by an unhealthy lifestyle. Is expected to the subject to start with a healthy lifestyle routine follow sports or exercise together. Although some subjects had to work hard to meet the economic needs of the family, but the subject must also pay attention to his health with adequate rest and regular blood pressure checked at the nearest health center.

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