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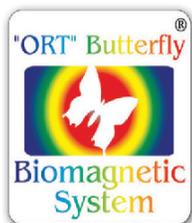
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# BIOMAGNETOTERAPIA W WYROBACH MEDYCZNYCH „ORT BUTTERFLY”

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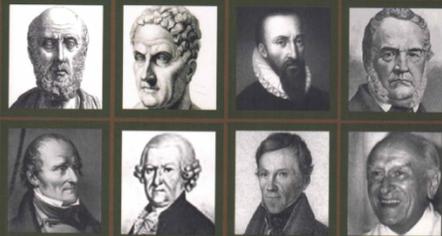
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# Reducing the feelings of work fatigue for women kindergarten teachers by implementing circulo massage

*Zmniejszenie uczucia zmęczenia pracą u nauczycielek w przedszkolach poprzez zastosowanie masażu circulo*

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## Abstract

Psychosocial stressors consist of work environment, family environment, and community environment. Kindergarten teachers as teachers or early educators, must be able to provide basic knowledge, find good and tough personalities in their students. This is one of the factors that cause the body to experience a decrease in fatigue at work. Study purpose. This study aims to determine whether there is an effect of circulo massage on reducing work fatigue of female kindergarten teachers. Materials and methods. This research is a pre-experimental research with a one-group pretest-posttest design using a circulo on the sample, while the data collection technique uses a questionnaire and the population is female kindergarten teachers. The number of samples in this study were 12 people. The data analysis technique used a t-test with a tool in the form of the SPSS (Statistical Program for Social Science) program. Results. The results show the average work fatigue score obtained before = 38.67 and after = 24.42 difference = 14.25 with t count = 6.362 in degrees of freedom (DF) = 11 and obtained t table of 2.201. The results of the data above show that the value of t count is greater than t table, meaning that there is a significant decrease from the comparison of t count with t table. Conclusions, therefore this result can be concluded that circulo massage is proven to have a significant effect on reducing work fatigue of state kindergarten teachers.

## Keywords

circulo massage, fatigue, kindergarten teacher

## Streszczenie

Stresory psychospołeczne obejmują środowisko pracy, środowisko rodzinne i środowisko społeczne. Nauczyciele przedszkolni, tj. nauczyciele lub wychowawcy, muszą umieć przekazać podstawową wiedzę, znaleźć w swoich uczniach dobre cechy i radzić sobie z trudnymi. Jest to jeden z czynników powodujących zmniejszenie zmęczenia organizmu podczas pracy. Cel. Niniejsze badanie ma na celu określenie wpływu masażu circulo na zmniejszenie zmęczenia pracą wśród nauczycielek przedszkolnych. Materiał i metody. Niniejsze badanie jest badaniem przedeksperymentalnym z jedną grupą oraz badaniami przeprowadzonymi przed i po interwencji z wykorzystaniem masażu circulo. Technika zbierania danych wykorzystuje kwestionariusz. W badaniu wzięło udział 12 nauczycielek przedszkolnych. W technice analizy danych wykorzystano test t z narzędziem w postaci programu SPSS (Program Statystyczny dla Nauk Społecznych). Wyniki. Wyniki przedstawiają średnie zmęczenie pracą przed = 38,67 i po = 24,42 interwencji. Różnica = 14,25 z liczbą t = 6,362 w stopniach swobody (DF) = 11 i otrzymaną tabelą t 2,201. Powyższe dane pokazują, że wartość liczby t jest większa niż tabeli t, co oznacza, że istnieje znaczny spadek liczby t w porównaniu z tabelą. Wnioski. Można uznać, że wpływ masażu circulo na zmniejszenie zmęczenia pracą wśród nauczycielek przedszkolnych państwowych jest istotny.

## Słowa kluczowe

masaż circulo, zmęczenie, wychowawca przedszkolny

## Introduction

Psychosocial stressors consist of work environment, family environment, and community environment. Kindergarten teachers as teachers or early educators, must be able to provide basic knowledge, find good and tough personalities in their students. This is one of the factors that cause the body to experience a decrease in feelings of fatigue at work. Stress and feelings of fatigue can affect the teaching profession, as already mentioned that to create human resources professional teaching staff are needed.

If the teacher is stressed and tired, the teacher will become an individual who is easy to deal with, tired, restless and difficult to concentrate. If so, the teacher cannot work optimally and this will affect the teaching and learning process. As a result, students are not able to absorb knowledge properly and eventually create human resources that are less qualified and have no good personality. Regarding the expectations and the existing reality, of course there is one important issue that needs to be scientifically corrected, so that researchers on this occasion know the effect of circulo massage on reducing work fatigue of state kindergarten teachers.

States that massage is an art of hand movement to get comfort, and the purpose of maintaining physical health [10]. Massage in this case is a manipulation of soft tissue structures that can reduce and reduce psychological stress by increasing endogenous morphine hormones such as endorphins, enkephalins and dynorphins while reducing levels of stress hormones such as hormones, norepinephrine and dopamine [6]. [8] states that massage is an action that aims to cure a disease through the nervous system and facilitate blood circulation. The same thing was also expressed [15] that massage is an alternative in treating the body or treating various diseases and health problems. [10] There are several schools of modern medicine who study massage and have proven that massage has an effect and has a physiological effect. Massage therapy, as a stand-alone treatment, reduces pain and improves function compared to no treatment in several musculoskeletal conditions [5]. Massage can also increase endorphins which cause a decrease in pain, sick thoughts, and increase the taste threshold [19]. According to Tjipto Soeroso quoted [4], massage is one of the simplest manipulations that humans first discovered to stroke pain. Putting hands gently on the sore area or stroking the hot forehead of a disease is the beginning of a spontaneous attitude or movement that produces a good effect. [7] Circulo massage is one of the massages with the main target of blood and lymph circulation. Adrenaline hormone is also produced by circulo massage using the tapotement technique which aims to trigger the sympathetic nerves [18]. Tapotement aims to accelerate blood circulation, increase muscle tone, accelerate the supply of nutrients in tissues, and accelerate metabolism [16].

Most female teachers are more trustworthy by most parents as a substitute for mothers at school [13]. Therefore, this female teacher not only pays attention to time for family but also has to pay attention to the time devoted to the public sector so that this role can be carried out properly [14]. According to Purwanto quoted by [2], the teaching profession is one of the oldest professions in the world. For this reason, social

interaction between teachers and students is very important in the learning process, so there is no pressure for a teacher in dealing with students [2]. Generally, there are three roles highlighted by women in development, namely women as human resources (human resources) in development, women as family builder, and women as development actors [9].

The sources of psychosocial stressors consist of the work environment, family environment, and community environment. The sources of psychosocial stressors owned by female kindergarten teachers can cause feelings of work fatigue. Circulo massage treatment can reduce feelings of work fatigue. The behavioral symptoms that appear based on the results of screening made from aspects of work stress according to Robbins and Judge quoted by [2], namely physiological aspects, psychological aspects, and behavioral aspects, indicate the phenomenon of work stress in married women who work as teacher. Symptoms of these behaviors include headaches, fatigue, irritability, difficulty communicating, feeling anxious or panicked, difficulty sleeping, recurring problems, decreased self-esteem, and boredom.

Based on the background, the following problems can be identified: 1) Kindergarten teachers have some work fatigue caused by their work as teachers and educators. 2) Kindergarten teachers as teachers who provide initial education and must be able to provide basic knowledge, find a good and tough personality, this is one of the factors that causes the body to be tired at work. 3) The success rate of circulo massage in reducing work fatigue is not yet known, even though it can be the only alternative in dealing with feelings of tiredness after work. 4) Female teachers who act as housewives, work optimally to meet daily household needs, so that they can cause feelings of tiredness after work. For that we need treatment that can reduce fatigue in order to be able to do work again the next day.

The research that will be carried out is on the effect of circulo massage on reducing feelings of work fatigue for female kindergarten teachers, as far as the author's knowledge has never been studied. Research that is similar to this research is "Recreation, Its Effect on Psychosocial Stress and Work Fatigue" [2]. The purpose of Andriyani's research is to see the relationship between psychosocial stressors and asthenia in elementary school teachers in the city of Yogyakarta. The research sample consisted of elementary school teachers using the experimental method. The results of this study indicate that there is a significant relationship between psychological stress and asthenia.

Research proves that circulo massage can reduce the work fatigue of female kindergarten teachers. The results of this study are expected to contribute to the government in reducing work fatigue in kindergarten teachers in particular and teaching staff in general. This can improve the quality of the learning process and optimize the quality of human resources produced by the world of education. In addition, every kindergarten can take advantage of the results of this research to create a conducive working environment and climate, so that teachers live in both physical and mental conditions and are able to work optimally. It is also hoped that the findings in this study will contribute to the repertoire of science, particularly health sciences, as well as provide a research basis for more comprehensive follow-up.

Materials and methods

Study Design

Based on the theories stated above, a research framework was developed which will be explained below:

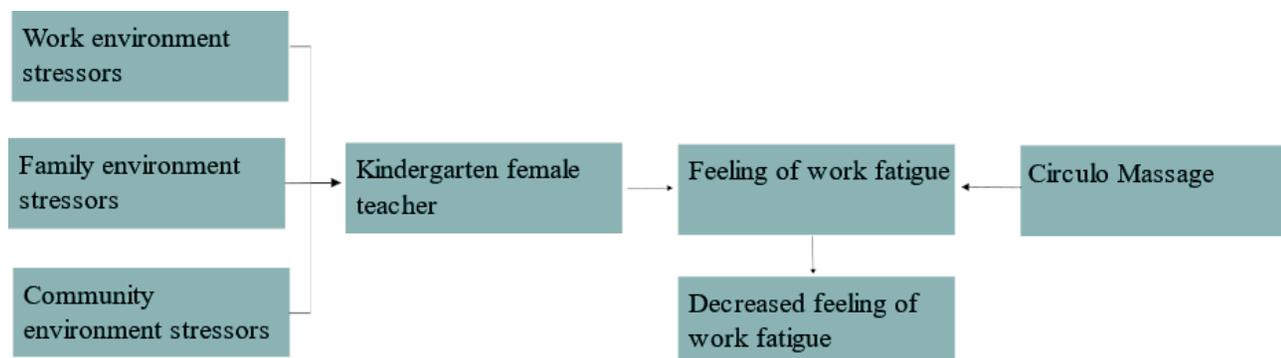


Figure 1. Thinking framework

The data is in the form of answers to the results of questionnaires given before and after circulo massage treatment to respondents, namely Kindergarten Women's teachers.

In accordance with the problems and formulation of the model that has been put forward as well as the interests of hypothesis testing, the analytical technique used in this study is quantitative analysis. Quantitative Analysis is an analysis that refers to the calculation of research data in the form of numbers and analysis with the help of a computer through the SPSS program.

Feelings of work fatigue score

The first questionnaire was given before the circulo massage

treatment and the second questionnaire was given after the circulo massage treatment. The questionnaire consists of seventeen items that have been modified and validated by [11] with a validation score of 0.844. Each item is scored based on the frequency of occurrence, divided into: often with a score of 4, often with a score of 3, sometimes with a score of 2, rarely with a score of 1 and never with a score of 0. In order to obtain the results of the initial score and final score, the sum of all the questions given according to the frequency of occurrence. Feelings of Work Fatigue Score can be seen in table 1 as follows:

Table 1. Work fatigue feeling score (Source: Data processed, 2022)

No	Sample	Initial score	Final score
1	A	39	18
2	B	43	25
3	C	41	24
4	D	38	31
5	E	45	34
6	F	43	21
7	G	41	32
8	H	35	22
9	I	27	31
10	J	36	22
11	K	31	8
12	L	45	25
Total		464	293
Average		38.67	24.42

t test

Comparison of the average score of feeling tired before and after being given circulo massage treatment showed that there had been a decrease of 14.25 or 36.85%. Based on the results of statisti-

cal calculations using SPSS 11.00 computer facilities, the values of t arithmetic, df and t tables are obtained. Comparison of the average scores of feelings of work fatigue before and after being given circulo massage treatment can be seen in the table as follows:

**Table 2 Comparison of average feelings of work fatigue score before and after circulo massage**

Subject	Score of feelings of work fatigue (Average)					
	Before	After	Difference	t-count	DF	t-table
Kindergarten Teacher	38.67	24.42	14.25	6.362	11	2.201

In accordance with the research goals or objectives to be achieved based on the theoretical study above, a hypothesis can be drawn, namely that there is a significant effect of circulo massage on reducing feelings of work fatigue for female kindergarten teachers. This research is a pre-experimental study with one group pretest-posttest designs, namely a research design that includes a pretest before being given treatment and a posttest after being given treatment. It is said so because the sources that influence internal validity are difficult to control [17].

$$O_1 \text{ ---- } X \text{ ---- } O_2$$

Information:

O<sub>1</sub>: pretest before being given treatment

O<sub>2</sub>: posttest after being given treatment

X: treatment (program)

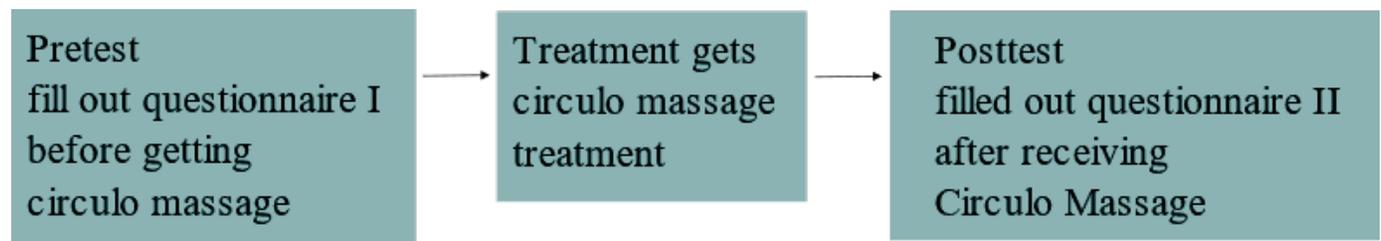
### Study participants

The population of this study were all female kindergarten teachers who were able or allowed to be researched and able to assist in this research as many as 12 (twelve) people.

There is no control group so the internal validity is very low, because the effect can be caused by external factors for example a calm atmosphere, the friendliness of the masseur and the subjects during the study, which results in results that cannot be compared. This research only covers several aspects, meaning that it does not examine adaptation but the response of the circulo massage given.

### Statistical analysis

The data collection process is described as follows:



**Figure 2. Data collection techniques**

The statistical analysis of the results used in this study was a t-test with a tool in the form of the SPSS (Statistical Program for Social Science) program.

The standard deviation of the two means is given SD notation, calculated from the following formula:

$$SD = \sqrt{\frac{\sum x_1^2 + \sum x_2^2}{n_1 + n_2 - 2}} \times \frac{1}{n_1} \times \frac{1}{n_2}$$

Information:

SD = Standard error of difference between two means

$\sum x_1^2$  = Total score deviation that squared in group one

$\sum x_2^2$  = Total score deviation that squared in groups two

n<sub>1</sub> = Number of subjects in group one

n<sub>2</sub> = Number of subjects in group two

$$(x = X - \bar{X})$$

The t-test formula is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S}$$

Information:

$\bar{X}_1$  = group mean 1

$\bar{X}_2$  = group mean 2

S = Variance (SD)

The formula can be written in full as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sum x_1^2 + \sum x_2^2}{n_1 + n_2 - 2}} \times \frac{1}{n_1} \times \frac{1}{n_2}}$$

### Results

The statistical test used to test whether there is a difference between the two averages is the t-test. This test is to determine the effect of circulo massage on reducing feelings of work fatigue for female kindergarten teachers, seen from the difference in the mean before being given circulo massage

treatment and the mean after being given circulo massage treatment. The elements that must exist in the t-test are the average of each variable to be distinguished and the standard deviation. Testing through t-test by comparing t-count with t-table at a significant degree of 95% or ( $\alpha = 0.05$ ), with the following test criteria:

a. If the t-count value is smaller than the t-table value, at a certain level of confidence  $H_0$  is accepted and  $H_a$  is rejected, which means that the independent variable (circulo massage) cannot explain the dependent variable (feeling of work fatigue) and there is no significant effect between the two variables. tested. If  $t_{count} < t_{table}$  or  $t_{count} < -1 t_{table}$  then  $H_0$  is accepted and  $H_a$  is rejected.

b. If the t-count value is greater than the t-table value, at a certain level of confidence  $H_0$  is rejected and  $H_a$  is accepted, which means that the independent variable (circulo massage) tested has a positive and significant effect on the dependent variable (feeling of work fatigue). If  $t_{count} > t_{table}$  or  $t_{count} > -1 t_{table}$  then  $H_0$  is rejected and  $H_a$  is accepted. Based on the calculation results as in table 2 above, it shows that using a significance level ( $\alpha$ ) of 6%, and with degrees of freedom ( $df$ ) = 11 and two-sided testing, a t table value of 2.201 is obtained.

c.

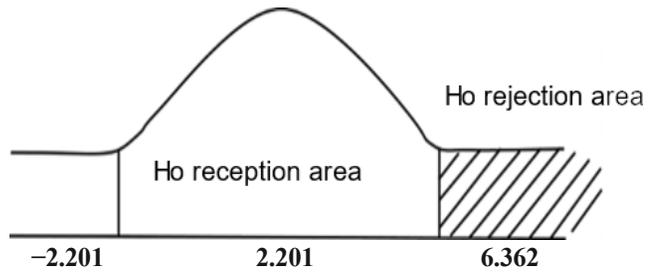


Figure 3.  $H_0$  Acceptance and rejection area curves

With these results it can be concluded that the data above shows  $t_{count} > t_{table}$ , meaning that  $H_0$  is rejected and  $H_a$  is accepted so that there is a significant difference between before and after circulo massage. The results of statistical analysis on the average score of feelings of work fatigue between before and after the implementation of the circulo massage treatment, showed a significant decrease and the comparison of  $t_{count} 6.362 > t_{table} 2.201$ , which means that there is a significant effect of circulo massage on reducing feelings of work fatigue female teachers of public kindergarten.

In order to obtain a clear picture of the characteristics of the subject to be studied, raw data is processed through descriptive statistical calculations. By describing the score of an existing change or variable, an overview of the problems that will be proposed in this study is obtained.

Table 3. Frequency distribution of feelings of work fatigue before circulo massage treatment (Source: Data processed, 2022)

Work fatigue	Frequency	Percentage
Not tired (0)	0	0
Mild (1–17)	0	0
Moderate (18–34)	2	16.67
Somewhat Weight (35–51)	10	83.33
Weight (52–68)	0	0
Total	12	100.00

Table 3 above shows the distribution of scores and the percentage of feelings of early work fatigue using five class intervals. The division of degrees is based on the highest total score that can be obtained, which is 68 and the lowest score

that can be obtained is 0. In Setyawati's research (1994) a division of degrees was carried out to group the subject's feelings of work fatigue into five, namely not tired, mild, moderate, rather heavy and heavy.

Table 4. Frequency distribution of feelings of work fatigue after circulo massage treatment (Source: Data processed, 2022)

Work fatigue	Frequency	Percentage
Not tired (0)	0	0
Mild (1–17)	1	8.33
Moderate (18–34)	11	91.67
Somewhat Weight (35–51)	0	0
Weight (52–68)	0	0
Total	12	100.0

From table 4 above, it can be seen that there is a decrease in the level of fatigue. Initially, the score of feeling tired from work was at a rather heavy interval, after being given circulo massage treatment, the highest frequency was at a moderate degree, namely 11 people (91.67%). There was even a very good decrease in feelings of work fatigue which reached the degree of not being tired as much as 1 person (8.33%).

The score distribution above shows that all subjects who experience work fatigue are at different intervals with the highest distribution, as many as 10 people or 83.33% experience feelings of work fatigue with a rather severe degree. The average score of feelings of fatigue at work for female teachers at State Kindergarten before being given the circulo massage treatment was 38.67 (see table 3).

### Discussion

From the data calculated with SPSS (Statistics program for social science), the following presents the results of the descriptive statistical analysis obtained based on the answers given to the subjects/respondents based on questions in the form of a questionnaire.

Feelings of Work Fatigue Before Being Given a Circulo Massage Treatment. Measurement of the work fatigue score of female teachers of Public Kindergarten before the circulo massage treatment, showed the highest score was 45 and the lowest was 27. From the results of collecting answers from the questionnaire on the subjects, the results obtained were the frequency of feelings of work fatigue before being given the circulo massage treatment as in table 3 below:

Subjects that are all women can increase the degree of fatigue, because women tend to get stressed and tired more easily. At the time this research was carried out, the workload was very heavy, because it coincided with the completion of the kindergarten students' exams and had to require extra work to correct the exam results. Other things that affect the high degree of feelings of fatigue can be caused such as the difficulties obtained with spouses where all research subjects are married.

The above is in accordance with the theory from Handayani and Pratiwi cited by Andriyani (2004) which states that various difficulties encountered can cause fatigue both physically and mentally. The feeling of being tired while teaching, feeling sleepy before the teaching process begins is caused by the burden of thinking that must be carried as a housewife [2]. Fatigue is a condition in which there is a decrease in physical quality and quantity, thus causing a decrease in precision and accuracy in carrying out physical activities [1]. Symptoms that can be observed from physical fatigue include: increased muscle tension, instability in carrying out other activities, decreased speed, strength and endurance. Fatigue will interfere with physical activity so it must be overcome and restored, including by doing massage.

All of the above is supported by MacKay's theory (2003) that feelings of burnout that occur in this study can be caused by excessive workload, inappropriate wages, and conflicts with family or co-workers experienced by public kindergarten teachers [12].

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Feelings of Work Fatigue Female Kindergarten Teachers After Being Given Circulo Massage Treatment. This second questionnaire was given after the circulo massage treatment. The score results obtained after the circulo massage treatment can be seen in the research results section.

Measuring the score of feelings of work fatigue after the circulo massage treatment, resulted in the highest score of 34 and the lowest score of 8. From the results of collecting the answers to the subject questionnaire, the results obtained were the frequency of feelings of work fatigue after being given the circulo massage treatment with 5 class intervals, namely not tired, mild, moderate, somewhat weight, and weight shown in table 4.

So the female teachers of Kindergarten in this study experienced a moderate degree. Subjects who are all women can exacerbate feelings of work fatigue because women tend to be more easily stressed and tired.

The average score for feeling exhausted by female kindergarten teachers after being given circulo massage treatment was 24.42. The score of feeling tired of work in female teachers of Kindergarten experienced a significant decrease between before and after being given circulo massage treatment. This decrease is related to the benefits of circulo massage which can reduce symptoms of feelings of work fatigue.

The more research on circulo massage is carried out, the most important implication derived from this research is the emergence of public trust in the benefits of circulo massage. This happens because of the increasing scientific evidence regarding the benefits obtained from the circulo massage treatment. Apart from that, this research can be an interesting scientific study of knee science (massage) for students so that it can be one of the thinking studies to find the next case study regarding circulo massage which has not been scientifically researched.

### Conclusions

Based on the results of the research analysis and discussion, it can be concluded that the circulo massage treatment has a significant effect on reducing feelings of work fatigue for female kindergarten teachers.

Scientific research on circulo massage can certainly add to the treasury of existing scientific studies on massage therapy. Therefore goal for masseur with the existence of a scientific study regarding one of the benefits of circulo massage, it is hoped that the masseur can dig deeper and broaden his horizons about the various benefits of circulo massage.

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