

# The influence of a relaxing massage on stress levels in women

## Wpływ masażu relaksacyjnego na poziom stresu u kobiet

### ABSTRACT

One of the factors that negatively affect the human body is susceptibility to stress. The inability to react to negative emotions and reduce tensions in the body causes many negative symptoms that affect people every day. A relaxing massage is one of the ways to reduce stress levels.

The aim of the study was to attempt to assess the effect of a relaxing massage on the level of stress in women aged 25-45 years.

The research group consisted of 60 women. The research group underwent a proprietary relaxing massage, while the control group used manicures or pedicures. As the research method an original questionnaire and the PSS-10 (Perceived Stress Scale) was used. The subjective assessment of the level of stress based on the proprietary survey and the PSS-10 questionnaire among the respondents after the relaxing massage was statistically significantly lower. However, no statistically significant differences in the decrease in stress levels were found between the two groups. On the other hand, a statistically significant relationship between education and the level of stress was proved. Subjects with lower education were characterized by a higher level of stress.

**Keywords:** relaxing massage, stress level, physiotherapy, PSS-10, health

### STRESZCZENIE

Jednym z czynników, który negatywnie wpływa na organizm człowieka, jest podatność na stres. Brak możliwości odreagowania negatywnych emocji oraz znielowania napięć w organizmie powoduje wiele negatywnych objawów. Jedną z metod obniżenia nagromadzonego poziomu stresu jest masaż relaksacyjny.

Celem pracy była próba oceny wpływu masażu relaksacyjnego na poziom stresu u kobiet w przedziale wiekowym 25-45 lat.

60 uczestniczek badania podzielono na dwie 30-osobowe grupy. Pierwsza grupa została poddana autorskiemu masażowi relaksacyjnemu, drugiej grupie zostały wykonane zabiegi manicure lub pedicure. Po przeprowadzonym masażu relaksacyjnym subiektywna ocena poziomu stresu była istotnie statystycznie niższa – jej ocena powstała na podstawie autorskiej ankiety oraz kwestionariusza PSS-10. Nie wykazano istotnych statystycznie różnic w spadku poziomu stresu pomiędzy obiema grupami. Wykazano natomiast istotną statystycznie zależność między wykształceniem a poziomem stresu. Osoby z niższym wykształceniem cechowały się wyższym poziomem stresu.

**Słowa kluczowe:** masaż relaksacyjny, poziom stresu, fizjoterapia, PSS-10, zdrowie

### INTRODUCTION

The woman of the 21<sup>st</sup> century is a tired person, often very busy, living in constant stress and rush. Nowadays it is difficult to reconcile work and daily household chores. Life is becoming more and more intense, a person begins to be subject to all kinds of pressure and tries to meet the requirements and limitations of the external environment

in which she lives [1]. As a result, there is a lack of energy, drowsiness, distraction and chronic fatigue. All these factors cause stress and certain physical, biochemical and immunological changes in our bodies. Stress itself affects the body's immune system by disrupting the production of antibodies and has a negative effect on the psyche, increasing feelings of helplessness and pessimism. This has a negative

impact on health, causing more and more illness and psychosomatic problems related to the stress hormones accumulated in the body [1, 2]. Due to its impact on the body, it should be ameliorated by introducing methods that reduce its effects to a minimum. Massage is one of the forms of stress-reducing therapy that supports the relaxation process [3]. Currently, SPA centers offer a rich variety of massages, the purpose of which is to calm down the body and relax it. It alleviates the symptoms of stress such as insomnia, increased muscle tension, and thought disorders. It improves mood and improves the level of cortisol and other stress hormones [3, 4].

## AIM OF RESEARCH

The aim of the study was to try to assess the impact of the proprietary relaxing massage on the stress level in women, to find out about the most common methods used to reduce the stress level among the respondents and whether there is a correlation between the health, education, age and stress level of the respondents.

## MATERIAL AND METHODS

The study was conducted on a group of 60 women, aged 25-45, the mean age was 34 years (SD = 6.1), the mean height was 168.3 cm and the average body weight was 65.1 kg, the mean BMI (Body Mass Index) was 23. Over 60% of the respondents had higher education, 20% had vocational education, and 12% of women had secondary education. Women participating in the study were divided into two groups according to the type of procedure performed. The first group consisted of 30 women who underwent a proprietary relaxing massage. The second group consisted of 30 women undergoing manicures or pedicures. The subjects from both groups completed the proprietary questionnaire and the PSS-10 questionnaire both before and after the massage or cosmetic treatment.

Each treatment of the proprietary relaxing massage lasted 70 minutes and was carried out in conditions that allowed for deep relaxation: dimmed light, the temperature in the room was 24°C and relaxing music was played in the background. The person being massaged was in the front lying position. The whole body was massaged in the examinations, starting from the lower limbs, then the buttocks and back were massaged with particular emphasis on the lumbar spine and the shoulder girdle, then the massage covered the upper limbs, and the chest and abdominal wall were massaged in the supine position. The massage was completed in the supine position in which the whole body of the subject was soothed. The massage included such techniques as stroking, rubbing, kneading and shaking.

The Statistica 9 program was used for statistical calculations. The relationships between particular features were examined using the Student's T-test. The level of significance was set at  $\alpha = 0.05$ .

## RESULTS

During the final month, frequent stress was experienced by almost half of the women, women slightly less, because 43% of the respondents declared occasional stress in the final month, the fewest women experienced stress rarely. Almost half of the surveyed women declared that talking to relatives is the most common way of coping with stress. This was followed by physical activity, watching TV or using a computer, more than 23% of respondents use massages and do nothing else to cope with stress. More than half of the respondents considered the illness of relatives and work to be a cause of stress. Daily duties and bad relations with other people were listed next. Managing the home budget was recognized by 22% of respondents as a cause of stress. The smallest number of people indicated vacation as a cause of stress.

The relationships between the level of stress and education, the nature of the work performed, the type of household, declared health and age were examined. For the group of people with secondary and vocational education, the test result is statistically significant. In people with lower education levels, the level of stress is significantly higher (table 1). No statistical significance was obtained in the correlations of the level of stress with other data.

In the group of women who underwent massage, 27% of women assessed their well-being as very good, and only 13% before the massage. Malaise before the massage was declared by 13%, and after the massage only 3% (fig. 1).

On the other hand, in the group of women using manicure or pedicure before the procedure, only 7% of women declared a very good mood, and 17% after the procedure. Also after the procedure, only 7% of women assessed their well-being as bad, while before the procedure as many as 23% (fig. 2).

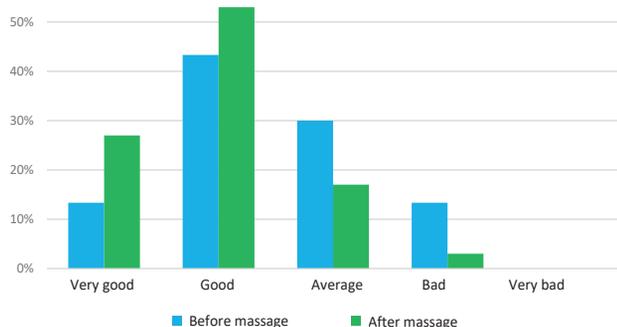
The difference in the average level of stress experienced before and after the procedure using the author's questionnaire is 1.6 points and is statistically significant at the level of  $p < 0.001$  (table 2).

In the control group of clients using a manicure or pedicure, a statistically significant decrease was also noted at the level of  $p < 0.05$  in the average stress experience before and after the procedure. The mean stress before the procedure was 5.8 points, while after the procedure it decreased to 4.7 points (table 3).

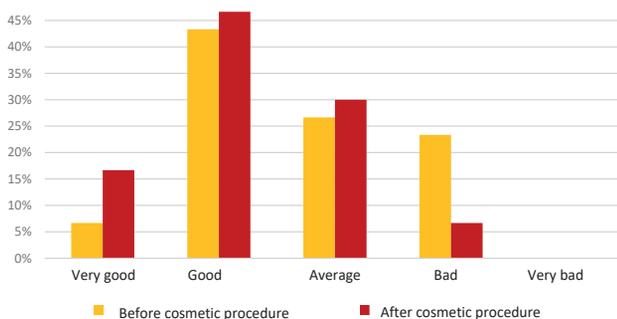
Before the massage, in massage groups, the average level of perceived stress on the basis of the PSS-10 Questionnaire was 21.6, while after the procedure it was 19.9. The value of the T test was  $(29) = 4.01$ ,  $p < 0.001$ , it is a statistically significant result (table 4).

In the control group, there was also a statistically significant decrease in the average perceived stress, from a level of 17.9 before the procedure to a level of 16.7 afterwards (table 5).

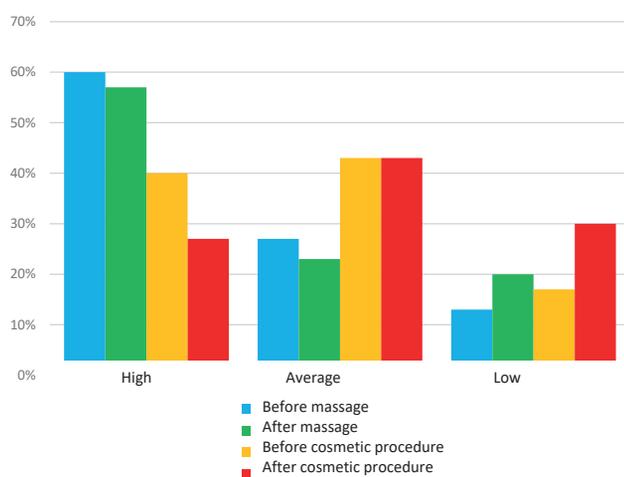
Despite a statistically significant reduction in the subjective level of stress after the cosmetic procedure, measured with the PSS-10 questionnaire, no statistically significant difference was found between the decrease in the level of stress in both groups (fig. 3).



**Fig. 1** Assessment of well-being in a group of people subjected to massage before and after the treatment  
Source: own study



**Fig. 2** Assessment of well-being in a group of women who underwent cosmetic procedures before and after the treatment  
Source: own study



**Fig. 3** Assessment of the stress level on the basis of the PSS-10 Questionnaire before and after the procedure  
Source: own study

**Table 1** The level of stress in relation to the education of the people surveyed

	Stress level	T-student test value	df	significance level p
Education				
secondary and vocational education (N=19)	22.9	2.8	58	0.007
higher education (N=41)	18.2			

Source: own study

**Table 2** The level of perceived stress before and after the massage - author's questionnaire

Massage group (n=30)				
Measurement before massage		Measurement after massage		Test T-studenta value  t = 5.6 df = 29 p < 0.001
Mean ± standard deviation	5.7 ± 1.8	Mean ± standard deviation	4.1 ± 2.0	
Mediana	5.5	Mediana	5.0	
(Min-Max)	0-7	(Min-Max)	0-8	

Source: own study

**Table 3** The level of perceived stress before and after the cosmetic treatment - author's questionnaire

Control group (n=30)				
Measurement before cosmetic procedure		Measurement after the cosmetic procedure		Test T-studenta value  t = 13.0 df = 29 p = 0.05
Mean ± standard deviation	5.8 ± 1.9	Mean ± standard deviation	4.7 ± 1.8	
Mediana	5.5	Mediana	5.0	
(Min-Max)	3-10	(Min-Max)	0-8	

Source: own study

**Table 4** Subjective level of perceived stress before and after the massage - PSS-10 questionnaire

Massage group (n=30)				
Measurement before massage		Measurement after massage		Test T-studenta value  t = 4.01 df = 29 p < 0.001
Mean ± standard deviation	21.6 ± 6.3	Mean ± standard deviation	19.9 ± 5.8	
Mediana	5.5	Mediana	5.0	
(Min-Max)	5-30	(Min-Max)	5-26	

Source: own study

**Table 5** Subjective level of perceived stress before and after cosmetic procedure - PSS-10 questionnaire

Control group (n=30)				
Measurement before cosmetic procedure		Measurement after the cosmetic procedure		Test T-studenta value  t = 3.75 df = 29 p < 0.05
Mean ± standard deviation	17.9 ± 6.0	Mean ± standard deviation	16.7 ± 5.4	
Mediana	5.5	Mediana	5.0	
(Min-Max)	5-30	(Min-Max)	5-26	

Source: own study

## DISCUSSION

In 2015, Jurkiewicz and Kołpa conducted research among people in the 25-35 age range. When asked about the main source of stress, the respondents most often indicated school (44%) for 21% stress was related to work, and for 21% with their home situation. The same research also asked about ways of coping with stress. One method to combat the accumulated stress was the use of sedatives (85%). Overeating was a slightly more common method. Less than half of the respondents used cigarettes in a stressful situation and 76% declared that in such moments they relax with music, and 80% are with a close person [5]. In the research conducted by the author, the most frequent causes of stress were the illness of a loved one and work. The respondents coped with stress thanks to talking to their relatives, taking up physical activity and in passive forms such as watching TV and using a computer. Similar results were also obtained in their research by Jędrych and co-authors. Respondents in stressful situations, most often lit a cigarette, talked to a close person and practiced hobbies [6]. The research showed a significant relationship between education and the declared level of stress. In people with higher education, the level of stress was lower. The survey conducted by Słopiecka showed that stressful situations in the family are most often experienced by people with secondary, primary and vocational education [7]. Women most often experienced stress at work if they had higher or secondary education. Słopiecka's research also noted that women with primary and vocational education were the most exposed to stressful situations [7]. It is undeniable that massage affects the human body. This is confirmed by research conducted in Australia by Cooke and co-authors on a group of 38 people who underwent an aromatherapy massage with relaxing music in the background. They observed that the massage significantly lowered the anxiety of the respondents and their anxiety level [8]. Pędziwiatr examined the effect of classic full-body massage on the improvement of mental processes of subjects. In his research, he showed a statistically significant improvement in processes such as: direct memory, concentration of attention, learning and perceptual-motor processes [4]. Listing and co-authors also noted the positive impact of massage on the human psyche. In their research on 34 women who underwent classical massage, they noticed a significant reduction in mood disorders and anxiety. They also observed a decrease in cortisol and serotonin levels after massage therapy and a reduction in the feeling of stress [9]. In the authors' own research, women who underwent a relaxing massage after the treatment declared significantly lower stress levels than before the treatment. There were also statistically significant rela-

tionships between these variables. An Australian group of researchers Garner and co-authors conducted a study on a group of people with mental disorders. For six weeks, the subjects used a twenty-minute back and neck massage every day. As a result, a reduction in aggressive behavior and a reduction in the level of stress were observed among the respondents [10]. Labrique-Walusis and co-authors claim that even a five-minute hand or foot massage reduces the stress level [11].

## CONCLUSIONS

The respondents mainly declared that they experienced stress frequently during the final month.

The respondents most often coped with stress thanks to talking to a close person and taking up physical activity.

The subjective assessment of the stress level on the basis of the proprietary questionnaire and the PSS-10 questionnaire among women subjected to massage was statistically significantly lower.

A statistically significant correlation was found between education and the level of stress. People with lower education were characterized by a higher level of stress. There were no statistically significant correlations between other data from the record (age, type of household, type of work performed, health condition).

## REFERENCES / LITERATURA

1. Borys B. Zasoby zdrowotne w psychice człowieka. *Forum Medycyny Rodzinnej*. 2010;4(1):4452.
2. Kowalska G, Grzyb B. Stres w życiu człowieka – ujęcie teoretyczne. *Przegląd naukowo-medyczny, Edukacja dla bezpieczeństwa*. 2015;4(29):379-387.
3. Wiśniewska I, Bloch M. Wpływ hawajskiego masażu Lomi Lomi Nui na złagodzenie objawów zmęczenia fizycznego i psychicznego organizmu. *Zeszyty naukowe, Wyższa Szkoła Przedsiębiorczości w Warszawie*. 2015;2(1):87-93.
4. Pędziwiatr H. Psychosomatyczne aspekty wpływu terapii masażem leczniczym na choroby somatyczne. *Sztuka leczenia*. 2006;13(1-2):9-18.
5. Jurkiewicz B, Kołpa M. Stres a ryzyko wystąpienia depresji u ludzi młodych w przedziale wiekowym 20-35 lat. *Problemy Pielęgniarstwa*. 2015;23(1):13-19. doi:10.5603/PP.2015.0003. Accessed 06.02.2021.
6. Jędrych M, Ruta E, Jodłowska-Jędrych B, Kusio A. Rola stresu w życiu pacjentów leczonych na oddziałach kardiologicznych. *Medycyna Ogólna i Nauki o Zdrowiu*. 2011;17(3):116-122.
7. Słopiecka A. Narażenie na sytuacje stresowe w opinii kobiet. *Problemy Pielęgniarstwa*. 2012;20(2):211-217.
8. Cooke M, Holzhauser K, Jones M, et al. The effect of aromatherapy massage with music on the stress and anxiety levels of emergency nurses: comparison between summer and winter. *Journal of Clinical Nursing*. 2007;9:1695-1703.
9. Listing M, Krohn M, Liezmann C, et al. The efficacy of classical massage on stress perception and cortisol following primary treatment of breast cancer. *Arch Womens Ment Health*. 2010;13:165-173.
10. Garner B, Phillips LJ, Schmidt HM, et al. Pilot study evaluating the effect of massage therapy on stress, anxiety and aggression in a young adult psychiatric inpatient unit. *Australian and New Zealand Journal of Psychiatry*. 2008;42(5):414-422. doi:10.1080/00048670801961131. Accessed 14.01.2021.
11. Labrique-Walusis F, Keister KJ, Russell AC. Massage therapy for stress management: implications for nursing practice. *Orthop Nurs*. 2010;29(4):254-257. doi:10.1097/NOR.0b013e3181e517c6. Accessed 15.01.2021.

otrzymano / received: 05.01.2021 | poprawiono / corrected: 17.01.2021 | zaakceptowano / accepted: 12.02.2021