

## **Zumba Training and Stress and Coping Strategies used by Women**

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**Abstract:** In the life of a contemporary woman, physical activity plays a very important role, as it is a source of satisfaction not only of health needs, but also the need to be socially accepted, the need to succeed, have fun, and relieve stress. According to the research, in people undertaking physical activity regularly, under the influence of physical exercises, stress decreases, there is a lower increase in emotional tension and a lower level of negative emotions in stressful situations. Women undertaking systematic Zumba training declare a lower intensity of perceived stress compared to the reference group - women not undertaking physical activity at all.

**Keywords:** physical activity, stress, Zumba, training

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### **Introduction**

In the life of a contemporary woman, physical activity plays a very important role, as it is a source of satisfaction not only of health needs, but also the need to be socially accepted, the need to succeed, have fun, relieve stress or break away from everyday duties (Nies, Motyka 2006; Ritvanen, Louhevaara, Helin, Halonen, Hänninen 2007; Blomstrand, Bjorkelund, Ariai, Lissner, Bengtsson 2009; Rotem, Epstein, Ehrenfeld 2009). It also increases one's self-esteem and self-confidence, improves the overall appearance, positively affects our brain activity, and thus also improves intellectual processes (Napierała, Szark-Eckardt, Żukowska, Kluska, Zukow 2014; Kaźmierczak, Radzimińska, Dzierżanowski, Bułatowicz, Strojek, Srokowski, Zukow 2015). Physical activity becomes a tool to improve one's self-esteem related to the physical sphere (Buckworth, Dishman 2002; Kalińska, Milde 2015). Sonstroem (1998) concluded that participation in physical activity is associated with an increase in self-esteem, Fox (2000) concluded that physical activity can be used in shaping a positive image of oneself. Due to the health-promoting potential of physical activity (especially that undertaken regularly), it is recommended as an important element of maintaining a healthy lifestyle (Anshel 2014).

Nowadays, a woman who faces career opportunities and development of many skills and competences, struggles with the combination of these opportunities brought by the new reality with the role assigned by tradition, that is, the role of a mother, a caretaker of a home, a guardian of the needs of children and often also the needs of parents who require care due to their age. The number of responsibilities, as well as the associated dilemma of which of the areas should she pay more attention to, makes a woman need a "valve" to relieve these tensions. She also needs space and time to take care of herself, her own body. Studies (Umstatt, Wilcox, Dowda 2011) has shown that the participation of middle-aged women in physical activity is correlated with an improvement in the assessment of the functioning and appearance of their own body. This is confirmed by a Polish research, in which women indicated motivation to undertake activities in the form of dance classes. The desire to maintain fitness, meet new people or the desire to break away from duties were among the motivation factors. The respondents also indicated that dance is an excellent method of rest and relaxation (Banio, Banio-Surmiak 2017).

The studies have confirmed the positive effect of exercises such as aerobics, walking and strength training on increasing self-esteem in women (Buckworth, Dishnam 2002). However, in the literature on the subject, we read that not every physical activity will have a positive impact on self-esteem, including the body's self-esteem. Leith (1994) draws attention to the selection of appropriate physical activity and adapting it to the specific aims of the person undertaking it and recommends avoiding competitive situations, as losing can negatively affect self-esteem. The duration of undertaking a physical activity is also important. Different study authors recommend different duration of an exercise program in order to obtain consistent results confirming the increase in self-esteem. This is from a minimum of 12 weeks (Leith 1994; DiLorenzo et al. 1999; So; Eto, Tsujimoto, Tanaka 2014), for a minimum of 15-20 weeks (Sonstroem, Morgan 1989), and as long as up to 20 weeks (McAuley, Mihalko, Bane 1997). However, they agree on the duration of a single physical activity unit, indicating 60 minutes, including warm-up and cool-down phases.

According to the research, in people undertaking physical activity regularly, under the influence of physical exercises, stress decreases, there is a lower increase in emotional tension and a lower level of negative emotions in stressful situations (Rostad, Long 1996). B.C. Long (1984, 1985, 1993) indicated that people

undertaking aerobic physical activity use physical exercise to reduce muscle tension and as a method of relieving stress. Other studies conducted on over 20 thousand adults (Corazon, Stigsdotter, Ekholm, Pedersen, Scopelliti, Giuliani 2010) indicate that physical activity relieves stress. In addition, it was found that people who lead an active lifestyle often use forms of physical activity to relieve perceived stress and improve their mental health (Lindwall, Ljung, Hadzibajramovic, Jonsdottir 2012).

Participation in dance classes has a multifaceted impact on the human body. In the literature on the subject, there are more and more works indicating the physical, psychological and social benefits associated with participation in dance and movement classes. Dance and movement forms of physical activity are becoming an effective, and at the same time widely available, form of activity promoting health and achieving mental well-being (Jain, Brown 2001; Guskowska 2006). Participation in dance and motor activities has a positive effect on the cardiorespiratory system, communication, concentration, memory processes, the ability to maintain static and dynamic balance, coordination, precision of performed movements and spatial orientation, it allows to increase the flexibility and the range of motion in the osteoarticular system. It also shapes the correct posture of the body (Karpinska 2000; Poznań 2005; Stozzek, Ridan, Kulczyk, Curyło 2013). Dance adds confidence in relations with the environment, helps to overcome shyness (Kuświadńska 2002), promotes the integration of human personality and is becoming a kind of a symbol of integration (Tomaszewski 1991; Garcia-Fernandez et al. 2017).

This is also confirmed by the participants of dance classes, who point out the positive aspects of participation in this kind of physical activity. Women notice a significant improvement in fitness, increase in energy and vigour, feel more relaxed and rested and sleep better. They also admit that with the participation in musical and physical activities, as well as taking care of their external appearance, their interest in the subject of a healthy lifestyle has increased. The changes also apply to mental health. A subjective assessment indicates better well-being and reduction in the level of perceived stress, an increase in self-esteem and feeling attractive (Banio, Banio-Surmiak 2017).

In the world literature on the subject, the cognitive and transactional concept of Richard Lazarus and Susan Folkman (1984) has gained popularity. According to this approach, stress is "a specific relationship between a person and the environment, assessed as burdensome or exceeding the person's resources and threatening their well-being" (Lazarus, Folkman p. 19). This relationship takes into account the requirements of the environment and the individual ability of the individual to cope with an occurring event. Richard Lazarus has introduced the concept of "transactions", which refers not only to the process of interaction itself, but also to its effects. Both the individual as well as the situation in which he/she finds themselves comprise the entire phenomenon of stress. The collision of the requirements of the environment with the individual's own capabilities in coping with a difficult situation is related to the cognitive process, which consists of assessing the personal significance of the event for the individual, as well as their own capabilities to cope with a given situation through the ability to use the possessed resources in confronting the stressor. Each event is assessed and classified by the individual as insignificant, conducive (positive) or stressful. The activity aimed at changing the stress transaction, referred to as coping, is the result of the assessment of the individual's resources (Heszen, Sęk 2007).

Another concept of relational approach to stress is the theory of conservation of resources of Stevan Hobfoll (1989). It seeks general principles guiding human deliberate behaviour, which boils down to maintaining, multiplying and protecting one's own resources (personal characteristics, self-esteem, social or economic position). A stressful situation occurs when there is a threat to the loss of these resources or the inability to increase them. Stress, according to Stefan Hobfoll, can be assessed in a subjective (own assessment of loss) or objective manner. Hobfoll emphasises resources, and sees sources of stress in the imbalance in the exchange of these resources between the individual and the environment (Hobfoll 1989). Stress reactions are different for each of us, because we assess the situation and determine the resources available to us thanks to which we can deal with a stressful situation (Lazarus, Folkman 1984).

### **Stress and Coping Strategies**

The concept of "coping with stress", introduced for the first time in the 1960s of the twentieth century, is considered to be one of the most important components of a stressful situation. The emergence of a stressor stimulates the activity of an individual aimed at its removal and returning to equilibrium, but it is the way of coping with the stressful situation that will be related to the loss that the individual will incur in the stress confrontation.

Resources are defined as those qualities that help us adapt, allow us to control stressful events, make us more resistant while in contact with the stressor and experiencing stressful situations and reduce the effects of the experienced stress on our health. They may be of biological or psychological nature (Guskowska 2003). They are understood as objects, personal characteristics, circumstances or favourable factors valued by the

individual (Hobfoll 2006). We read about generalised immune resources in the works of Aaron Antonovsky (1995). The author distinguishes physical strength (subject-material characteristics) as one of the resources. Among the resources, other authors also mention health and energy (Lazarus, Folkman 1984), as well as other physical resources understood as health and physical attractiveness (Sheridan, Radmacher 1998).

The course of a stress transaction may be influenced by physical activity (indirectly), which is related to the formation of mental properties that play the role of own resources in the process of coping with stress. These properties have a moderating effect on the course of the stress transaction, modifying the primary (situation) and secondary assessment (the ability to cope with given conditions), as well as the intensity of emotional reactions, the choice of ways to cope with stress and the health costs of confronting it (Guszkowska 2005).

The role of such a resource in coping with stress may therefore be played by physical fitness, which in adults was negatively correlated with the level of psychological stress (Tucker 1990). Studies have shown that more physically fit people absorbed less psychosocial stressors, indicators such as heart rate or skin-galvanic response returned to normal faster after the emergence of a stressor than in less fit people (crews, Landers 1987). Other studies have shown a moderating effect of physical fitness on the correlation between stress and health. Strong stress was associated with worse health in less fit people (Rostad, Long 1996).

Stress accompanies everyone in different areas of life. Dealing with it is a part of existence and a person learns how to respond to stressors. However, everyone encounters situations in their life, to which there is no ready adaptive response, and many people have individual ways of coping with a stressful situation (Antonovsky 1979, 1997). It is the difficult situation that mobilises for the activity that a person undertakes in order to improve the emotional state. Jan (2000) wrote that the process of coping with stress involves behavioural and cognitive efforts that constantly change and are aimed at controlling internal and external situations assessed by an individual as difficult or exceeding their resources.

The process of coping with stress in a cognitive and transactional approach is a continuous cognitive and behavioural effort, which is focused on external or internal requirements assessed as dangerous or burdensome (Lazarus, Folkman 1984). In other words, it is a sequence of many strategies undertaken by an individual in a specific stressful situation (Wrześniewski 2000), related to changes in the psychophysical state and conditions of a given situation (Strelau, Jaworowska, Wrześniewski 2005) and covering the entire effort of an individual to deal with a given situation (Ogińska-Bulik, Juczyński 2008). The coping style is also defined as a set of strategies characteristic of a given individual, some of which are activated in the process of coping with a stressful situation (Heszen-Niejodek 2000).

Researchers (Endler, Parker 1990) distinguished three independent styles of coping with stress, and these are: 1/problem-focused style (characterised by making efforts that aim to solve the problem through cognitive or behavioural change of the situation), 2/emotion-focused style (tendency to focus on one's own emotional experiences – anger, anxiety, guilt, emotional tension) and 3/avoidance-focused style (avoiding thinking about the whole situation, avoiding reliving it or experiencing it). The latter style is divided into two subscales: engaging in substitute activities, e.g. watching TV, turning to work, thinking about pleasant things, and looking for social contacts, e.g. visiting friends.

The process of coping with stress can be assessed as effective when a lasting solution to the problem has been achieved, not entailing additional conflicts, but allowing for the occurrence of a positive emotional state (Folkman, Moskowitz 2004). Jan Strelau (2000) also emphasises that effective coping, tailored to requirements and opportunities, reduces the state of stress, while ineffective coping leads to its increase. In the literature on the subject, there is no unambiguous research indicating the advantage of a specific style of coping with stress over others. However, Irena Heszen and Helena Sęk (2007) draw attention to the flexibility of coping strategies, which means that the individual has various strategies that change over time. Susan Folkman and Judith Moskowitz (2004) indicate that preventive behaviours beneficial for one person may not benefit others, and emphasise the importance of social support in the process of coping with stress.

### **Materials and Methods**

The research was carried out in selected fitness clubs from the first quarter of 2018. Due to the "seasonality" of this type of physical activity, the research was not carried out in the summer, during summer holiday period.

To compile the first group – participants of the Zumba training - there was a two-stage draw: a draw of groups, i.e. fitness units (fitness clubs) and then a quota sampling (80% of the target population).

In the reference group (expert sampling), a purposive selection was made: "*judgmental sampling*".

#### **Research aims:**

1. What is the relationship between Zumba training and the level of stress perceived by women differentiated due to undertaken physical activity?

2. What is the relationship between Zumba<sup>®</sup> training and the preferred strategies for coping with stress of women differentiated due to undertaking physical activity?

**Research hypotheses:**

**HYPOTHESIS 1:** Women undertaking systematic Zumba<sup>®</sup> training declare a lower intensity of perceived stress compared to the reference group - women not undertaking physical activity at all.

**HYPOTHESIS 2:** Women undertaking systematic Zumba<sup>®</sup> training declare more frequent use of active strategies to cope with stress, compared to the reference group - women not undertaking physical activity at all.

**The sampling of respondents consisted of 2 subgroups:**

The first group (n=140) - a group of adult women, participating in the systematic dance and physical activity of Zumba<sup>®</sup> (without medical contraindications to participate in physical activity).

The women participating in the study attended Zumba<sup>®</sup> classes for 12 weeks, which took place in the evening and lasted 60 minutes. Each training session was conducted by a licensed Zumba<sup>®</sup> instructor. It started with a 10-minute warm-up (warm up, average pace of about 126 bmp) and consisted of three stages: 1/, basic fitness steps: step touch, step out, double step, march and consisted of a short sequence creating choreographies for the selected music piece; 2/the steps from the first part were continued and the movements of raising hands were added, the movements became more intense and the aim was to raise the heart rate, 3/the muscular parts of the front and rear tape were involved, the abdomen and hips were moved to the rhythm of a Latin American music piece. The warm-up was aimed at increasing the heart rate and body temperature, as well as preparing the joints for exercise and introducing the participants to the nature of the activities. The warm-up took the form of fun and integration of the group. The main part of the classes (main part, pace averaged around 103 bmp) consisted of 8-10 main pieces of Zumba<sup>®</sup> music recommended by the authors of the program available on a dedicated platform for licensed instructors. The intensity was varied, as was the character of the piece (including: salsa, merengue, reggaetón, flamenco, cumbia, quebradita). Each track lasted 3-5 minutes. The last part of the class (cool down, average pace of about 79 bmp) consisted of 2 calmer pieces containing simple movements, which were aimed at calming the mind and body, but still remained faithful to Zumba<sup>®</sup>'s character and were therefore based on choreography and fun.

The second group (n=129) was the reference group. It consisted of adult women who during the previous six months did not undertake systematic physical activity, including dance and physical activity of Zumba<sup>®</sup>. It also included women without medical contraindications to participate in physical activity.

The questionnaire studies were conducted in the 13th week of the duration of the studies, the condition for participation in the questionnaire studies was participation in a 12-week cycle of Zumba<sup>®</sup> classes.

**Psychological tests used in the research: PSS-10 and Mini-COPE.**

PSS-10 test is used to assess the intensity of stress associated with respondent's own life situation over the previous month. The intensity of stress is determined not by the number of events, but by their assessment. The scale is intended mainly for research purposes, but it is also used in practice, in screening and preventive tests, as well as in the assessment of the effectiveness of therapeutic interactions (Juczyński and Ogińska-Bulik, 2012).

Mini-COPE is used to measure disposable coping, i.e. to assess typical ways of responding and feeling in situations of experiencing severe stress. The author of this tool is Charles S. Carver (1989), adapted by Zygryd Juczyński and Nina Ogińska-Bulik (Juczyński Z., Ogińska-Bulik N.: Tools for measuring stress and coping (Juczyński and Ogińska-Bulik, 2009). The tool is designed for testing adults, healthy and unhealthy. It consists of 28 statements included in 14 strategies (2 statements in each strategy).

**Results**

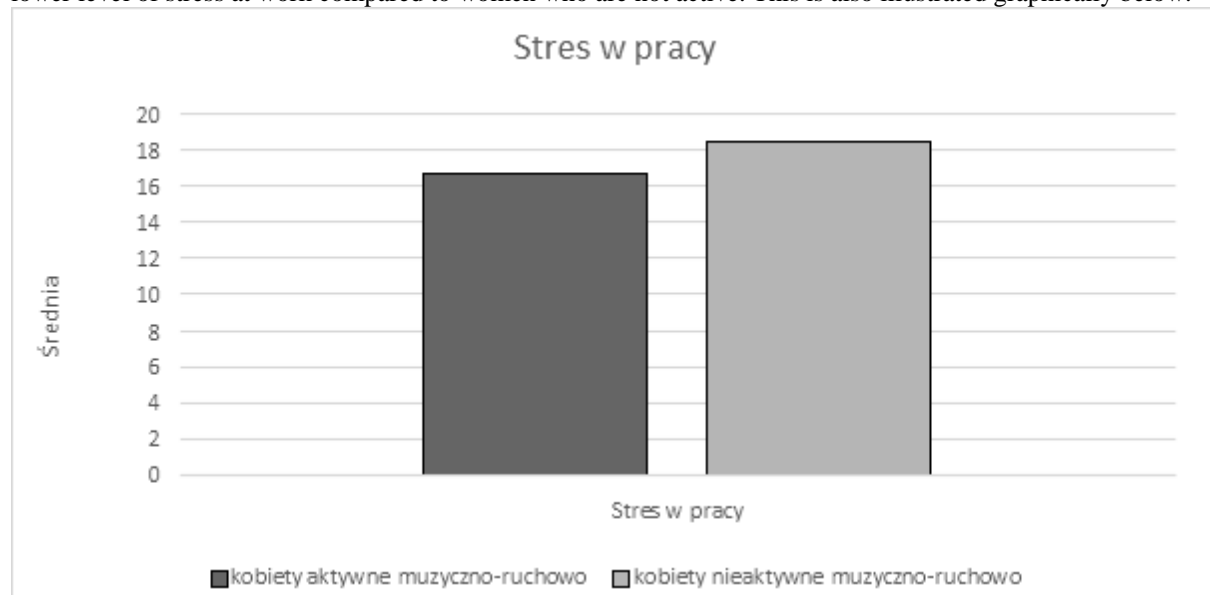
In the first stage, it was checked whether there are differences in terms of perceived stress due to undertaking **Zumba<sup>®</sup> training**. For this purpose, the student's t-test analysis for independent trials was carried out comparing musically and physically active and inactive adult women. The results of the analysis are presented in Table 1.

Table 4: Comparison of active and inactive women in Zumba training in terms of level of stress in workplace

	yes (n = 140)		no (n = 129)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Stress at work	16.71	5.09	18.43	5.63	-2.57	0.011	-3.04	-0.40	0.32

Reference. M – mean; SD – standard deviation; t – test value t; p – significance level; LL and UL – lower and upper confidence limits, Cohen' d – effect size

The conducted analysis showed that women participating in Zumba training experience a significantly lower level of stress at work compared to women who are not active. This is also illustrated graphically below.



Reference: Stres w pracy - stress in workplace; Średnia - average value; kobiety aktywne muzycznie-ruchowo - musically and physically active women; kobiety nieaktywne muzycznie-ruchowo - musically and physically inactive women

Figure 1: Average values for the level of stress at work depending on women's participation in Zumba training

In the second stage, it was checked whether, due to undertaking Zumba training, there are visible differences in the strategies used to deal with stress. For this purpose, the student's t-test analysis for independent trials was carried out comparing musically and physically active and inactive adult women. The results of the analysis are presented in Table 2.

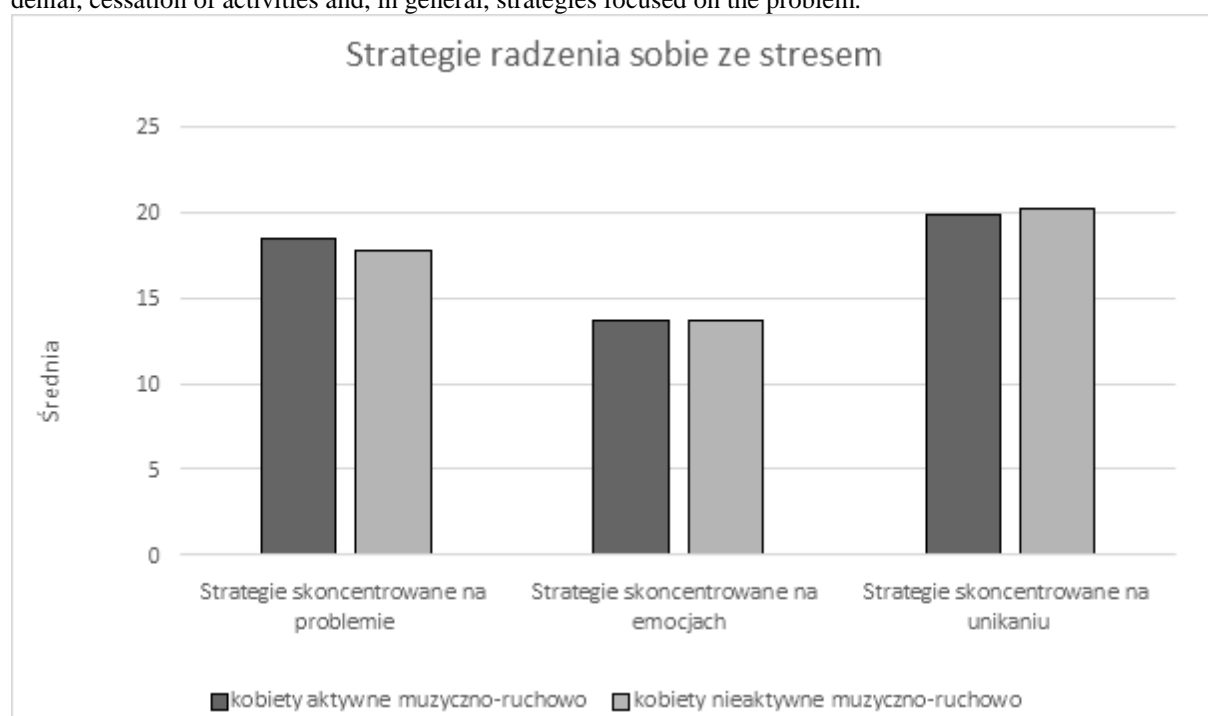
Table 2: Strategies for coping with stress in Zumba active and inactive women

	yes (n = 140)		no (n = 129)		t	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Active coping	6.51	1.21	6.21	1.17	2.10	0.036	0.02	0.59	0.25
Planning	6.34	1.13	6.02	1.22	2.19	0.030	0.03	0.59	0.27
Seeking Instrumental Support	5.63	1.38	5.46	1.44	1.00	0.320	-0.17	0.51	0.12
<b>Problem-focused Strategies</b>	18.48	2.70	17.69	2.72	2.39	0.018	0.14	1.44	0.29
Seeking Emotional Support	6.02	1.28	5.71	1.59	1.74	0.083	-0.04	0.66	0.22
Turn towards Religion	4.29	1.93	4.14	1.93	0.65	0.515	-0.31	0.62	0.08
Denial	3.41	1.22	3.82	1.49	-2.49	0.014	-0.74	-0.09	0.30
<b>Emotion-focused Strategies</b>	13.72	2.69	13.67	2.92	0.14	0.891	-0.63	0.72	0.02
Discharge	4.83	1.32	4.83	1.19	-0.01	0.995	-0.30	0.30	0.00

Dealing with Something Else	5.53	1.45	5.27	1.35	1.50	0.134	-0.08	0.59	0.19
Cessation of Activities	3.16	1.15	3.64	1.15	-3.42	0.001	-0.76	-0.20	0.42
Use of Psychoactive Substances	2.55	1.04	2.82	1.30	-1.88	0.061	-0.56	0.01	0.23
Sense of Humor	3.78	1.28	3.58	1.22	1.29	0.197	-0.10	0.50	0.16
<b>Avoidance-focused strategies</b>	19.85	3.60	20.15	3.43	-0.69	0.490	-1.14	0.55	0.09
Positive reevaluation	5.69	1.30	5.45	1.25	1.56	0.119	-0.06	0.55	0.19
Acceptance	5.78	1.29	5.57	1.12	1.44	0.151	-0.08	0.50	0.18
Self-blame	4.52	1.33	4.81	1.40	-1.76	0.080	-0.62	0.04	0.21

Reference. *M* – mean; *SD* – standard deviation; *t* – test value *t*; *p* – significance level; *LL* and *UL* – lower and upper confidence limits, *Cohen's d* – effect size

The conducted analysis showed significant differences between groups for active coping, planning, denial, cessation of activities and, in general, strategies focused on the problem.



Strategie radzenia sobie ze stresem - Coping strategies; Średnia - average value; Strategie skoncentrowane na problemie - Problem-focused Strategies; Strategie skoncentrowane na emocjach - Emotion-focused Strategies; Strategie skoncentrowane na unikaniu - Avoidance-focused strategies; kobiety aktywne muzycznie-ruchowo - musically and physically active women; kobiety nieaktywne muzycznie-ruchowo - musically and physically inactive women

Figure: Main scales of coping strategies in relation to participation in Zumba Training

A detailed analysis of the results showed that women who undertake systematic Zumba® activity achieve a significantly higher score in terms of active coping with stress, planning, general strategies focused on the problem, as well as a significantly lower level of application of denial strategies and cessation of operations than women who do not undertake this type of activity. For other stress management strategies, differences between groups are statistically insignificant.

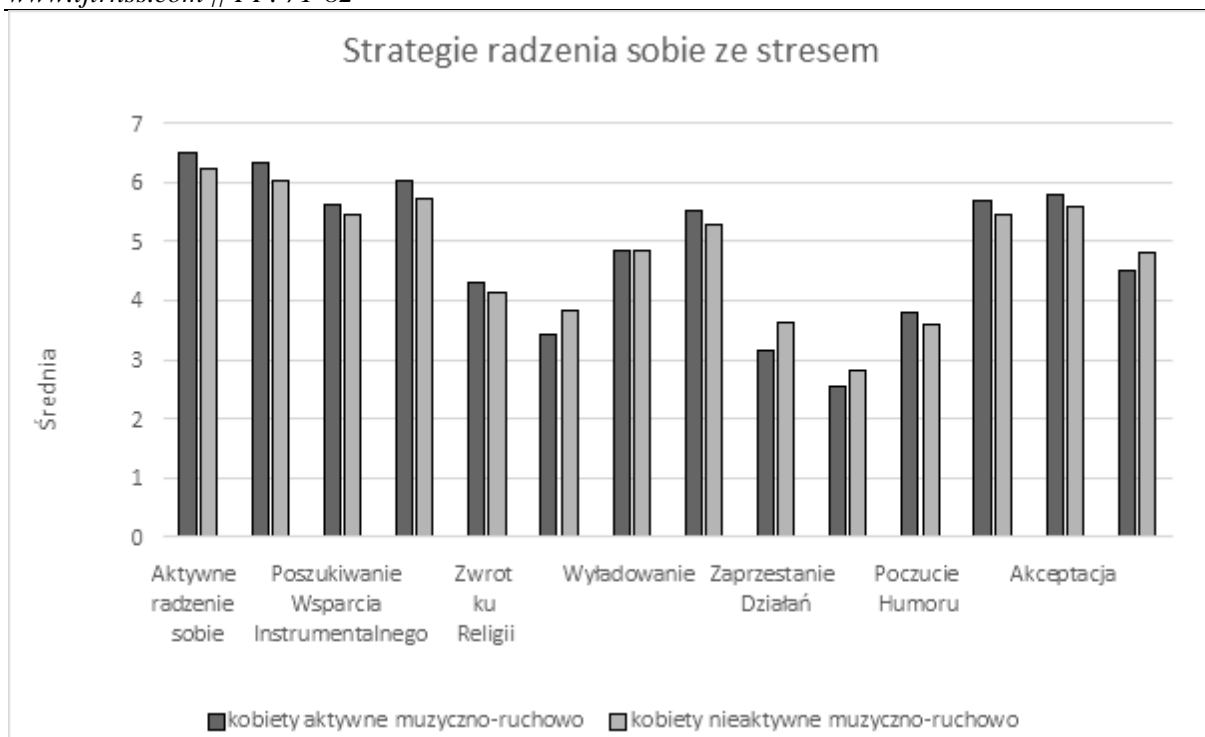


Figure 2: Average values for coping strategies in relation to participation in Zumba Training

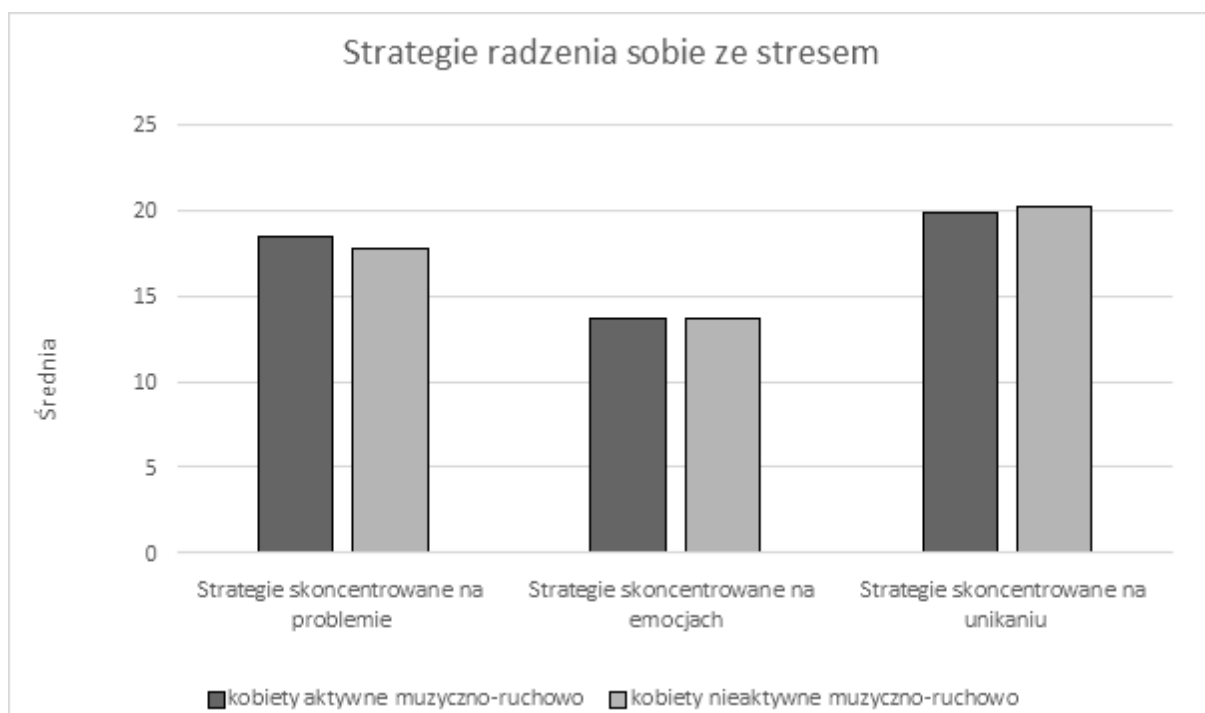


Figure 3: Main scales of coping strategies in relation to participation in Zumba Training

### Discussion

The analysis carried out in this thesis showed that adult women undertaking systematic dance and motor activity of Zumba obtain significantly lower (sten score of 5) indicators of the intensity of perceived stress compared to women who are not physically active at all (sten score of 6). The difference of one sten is small, but it shows a certain direction of the considered relation between variables. The conducted analysis also showed the lack of relationship between the age groups of adult women and the perceived severity of stress.

Let us recall that according to Lazarus and Folkman (1984), stress is a specific transaction between an individual and its environment (stressor), which can be assessed as taxing or exceeding its resources. Cognitive assessments of an individual (primary and secondary) classify a transaction as stressful (distress), neutral (neustress) or challenging (eustress). Stress is a kind of imbalance between the requirements of the environment and the remedial capabilities of an individual. It can be assumed with some probability that the systematically undertaken musical and motor activity of Zumba<sup>®</sup>, changing to a certain extent subjective and objective indicators of a woman's health (e.g. subjective sense of absence of disease or objective level of physical fitness related to health), modifies the quality of cognitive assessment in the individual's response to occurrence of a stressor. And it may not significantly change the primary assessment (consisting in determining the subjective significance of the stressor for the individual), but it certainly affects the secondary assessment (physical activity as a health resource certainly affects the assessment of the ability to cope with the stressor).

It is highly likely that undertaking appropriate (moderate, systematic, monitored) physical activity may become a way to reduce emotional tension (Guszkowska 2005).

Participation in dance and movement activities has a positive effect on cognitive functioning (Murrock, Graor 2014) as well as emotional personalities, as a result of which, the tension resulting from problems carrying a large emotional load decreases (Spruit et al. 2016), and has a positive impact on the course of depression treatment (Silveria et al. 2013).

Other studies (Jayasinghe, Torres, Hussein, Freser, Lambert, Turner 2017) indicate that women aged 30-50 years with lower physical fitness (not attending fitness classes) have lower ability to obtain an adaptive response to stressful situations. However, the group of respondents was small, 34 women were finally examined. Let us recall that in social research (especially with the use of psychological tests and questionnaires), a group of at least 100 people is considered a desirable sample (Brzeziński 2019). The tool measuring the level of stress was the TSST (Trier Social Stress Test). However, the authors of these studies emphasise the importance of the participation of people in regular physical exercises, calling them a buffer protecting them against the harmful effects of stress.

Stress is a common phenomenon in the workplace. In classical studies, it has already been shown that indicators of stress and burnout are most associated with factors of the professional environment (Maslach, Goldberg 1998). Stressors in the workplace may be associated with overloads, work complexity, monotony, high responsibility, but also working conditions (noise, lack of hygiene, dangerous situations). Other stressors may be employment conditions and related shift work or job insecurity. Difficult situations at work also include difficult social relations (discrimination, little social support) (Le Blanc et al. 2003). In the world literature, research was published (Gnana, Priya 2016), in which the authors focus on married, professionally active women (54 women) and the causes of their stress and strategies to deal with it. Women, in these studies, among the causes of work-related stress, indicate similarly a high burden of professional tasks, time pressure in achieving a professional goal and low chances of promotion, not always easy relationships with colleagues and working with demanding clients. In these studies, as a way of coping with stress, the women emphasised the importance of talking to friends, relaxing with loved ones and listening to music. However, there is no reference to the explanatory variable in the form of dance and movement activity. The authors did not propose such a scientific subject in the surveys.

In other publications, we find confirmation that physical activity is one of the ways to relieve stressful situations at work (Chin-Tsai 2013). In the research, it can be noted that undertaking physical activity as such is often motivated by the desire to relieve professional stress and relieve everyday tension (Slendak, Cewińska 2015; Figaj Poczta 2016), and one of the most popular forms of activity is a group of dance and physical activities. Studies indicate that women attending fitness classes declare greater resistance to mental stress compared to women who do not attend such recreational activities (Campbell, Gross, Potter, Schmitz, Duggan, Mctiernan, Ulrich 2010; Jayasinghe, Torres, Hussein et al. 2017). In training and health education, proper habits of undertaking even recreational physical activity, the awareness of the needs of movement and active recreation have a fundamental impact on the state of health and physical fitness, performing both a preventive and therapeutic role (Guszkowska 2009). In addition, activity of this nature reduces the sense of anxiety, increases vitality and strengthens the body's energy level. There are also studies in the literature that indicate a lack of significant stress reduction due to participation in a 12-week physical activity program (Soriano-Maldonado, Morillas-Laguno, Sabio, Gavilan-Carera, Rosales-Castillo, Montalban-Mendez, Saez-Uan, Callejas-ubio, Vagas-Hitos 2018). The authors, on the other hand, summarise the research, pointing out that it is worth conducting research on a larger sample of women. The study was conducted on 54 women in total, in the experimental and control groups.

In studies (Lippert, Damaske 2019) conducted among young adult women, we read that the lowest stress experienced is in women performing full-time professional work, regardless of whether they have children or not. The authors also point out that the choice of a life path in which education, a career and a relationship based



on partnership are important has a positive impact on the level of perceived stress regardless of having children or not. Other studies (Thagunna, Bhatta, Adhikari 2020), taking into account women over 60 years of age, indicate that higher levels of stress are reported by married women than by single women, as well as higher levels of stress accompany stay-at-home women (who do not have "their own income") than women performing professional work. Analysing the literature, we further read that in the group of women aged 45-66, the most common stressors at work are difficult social relations, lack of adequate remuneration for work, lack of support as well as a sense of great mental load and excessive responsibility for assigned tasks (Gujski, Pinkas, Juńczyk, Pawełczak-Barrszczowska, Raczkiewicz, Owoc, Boja 2017).

A detailed analysis of the results also showed that women undertaking systematic music and movement activity of Zumba<sup>®</sup> obtained significantly higher results in the field of Active Coping Strategies (Active Coping, Planning, with Positive Re-evaluation being on the verge of significance and in this case we can only talk about a certain tendency to the occurrence of a difference), as well as significantly lower results in the application of some strategies considered less effective in coping with stress, such as Denial, Cessation of Operations, Use of Psychoactive Substances, Self-Blame (in case of the last two we can also talk about a tendency). Relatively strongest values of effects (although they are rather low) were recorded in the case of Cessation of Operations (Cohen's  $d = 0.42$ ), Denial (Cohen's  $d = 0.30$ ), Planning (Cohen's  $d = 0.27$ ), Active Self Management (Cohen's  $d = 0.25$ ) and Use of Psychoactive Substances (Cohen's  $d = 0.23$ ). Thus, women undertaking systematic Zumba<sup>®</sup> music-movement activity use Active Coping and Planning more often compared to women who are physically inactive, while the less frequently considered music and movement activity is related to the use of Cessation of Operations, Denial and Use of Psychoactive Substances, i.e. strategies generally considered less effective in coping with stress.

The analysis of the results also showed that there was no significant differentiation between the groups of women surveyed and their strategies for coping with stress.

Let us mention here that the inventory used in the research, constructed by Charles Carver and colleagues (1989), refers to the transactional model of stress by Richard Lazarus (Lazarus and Folkman 1984) and the model of self-regulation of behaviour (Scheier and Carver 1988). The Mini-COPE test inventory is used to measure how people respond to stress. Coping (considered in this study), which is the result of individual differences and characteristics of the situation, takes the form of managing the dispositional coping (relatively permanent disposition) rather than the situational one. According to Juczyński and Ogińska-Bulik (2012), the assumption of a more adaptive nature of strategies focused on the problem was adopted, and strategies consisting in seeking support and focus on emotions and avoiding were considered less non-adaptive. An example confirming the thesis may be a situation in which denying or withdrawing (avoiding) not only does not lead to a reduction in the difference between the stressor and the individual's resources to deal with it, but even enlarges these differences, and as a result leads to the intensification of perceived stress.

In the world literature (Gillett, Crisp 2017), a research can be found (women 23-63 years old), the results of which present a direct relationship between coping focused on emotions and the problem with mental well-being. Interestingly, avoidance-based coping is attributed to a moderating effect in relation to a subjective well-being.

Studies by Agnieszka Kruczek and Magorzata Basińska indicate that women use coping with stress through humour to a much lesser extent than men. The authors also note (unlike in their own research) that younger adult women (20-40 years) use humour for coping less often than women in middle and late adulthood (over 40 years of age) (Kruczek, Basińska 2018). The authors point out that use of humour as a coping strategy in people over 40 is associated with a richer life experience, and thus greater distance and taking a more humorous attitude in stressful situations, which helps in perceiving stressful stimuli as those with less risk.

Other studies (Piekarska, Martowska 2020), in which 512 women aged 18-20 were examined, indicate a poor correlation of emotional intelligence with the strategy of coping with stress. The authors suggest that it may be a challenge for people with high emotional intelligence to use these resources in coping with stress. It is a consistent position with research focusing on the relationship between abilities such as naming emotions in oneself and others, using emotions in decision-making, understanding emotions and managing emotions and perceived stress and coping with it (Matthews et al., 2006; Davies, Humphrey 2014; Ruiz-Aranda, Extremera, Pineda-Galán, 2014). An interesting research was published in 2019 (Chishti, Rafiq 2019). It focuses on women aged 16-52 (although with the problem of excessive hair). These studies indicate that the types of strategies for coping with stress can be considered in the category of predictors of psychosocial problems and mental health disorders.

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