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ORIGINAL ARTICLE

SENSE OF COHERENCE AND STYLES OF COPING STRESS IN OBESITY

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Introduction: The aim of the study is to determine the relationship between the sense of coherence and styles of coping with stress in obese people. The theoretical framework used is the Salutogenic Theory of Health by A. Antonovsky and the concept of Coping Styles by N. Endler and J. Parker.

Methods: Two questionnaires were used: Sense of Coherence 29 (SOC-29) Questionnaire by Antonovsky and Coping Inventory for Stressful Situations (CISS) by Endler and Parker, as well as a self-made Biometrics Survey. Research was carried out in two groups of participants: obese people (n=31, 15 female and 16 male) in the age of 18 to 65 years, and normal-weight people (n=32, 15 female and 17 male) in the age of 18 to 67 years.

Results: It was found that the sense of coherence correlated positively with the task-oriented style and negatively with the styles oriented on avoidance and distraction. There are differences between obese and normal-weight people in terms of the sense of coherence and coping styles. Normal-weight people have higher scores on the scale measuring task-oriented coping, whereas obese people have higher scores on the scales measuring emotion-oriented coping and avoidance-oriented coping in the form of distraction.

Discussion: Discussion was based on the Salutogenic Theory of Health by A. Antonovsky, and the concept of Styles of Coping with obesity-related stress by N. Endler and J. Parker.

Conclusions: There is a correlation between the sense of coherence and styles of coping stress.

Keywords: sense of coherence, obesity, coping stress

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INTRODUCTION:

The aim of the study was to analyze the relationship between the sense of coherence and styles of coping stress, as well as to compare obese and normal-weight participants with respect to the studied variables.

Sense of coherence

The Salutogenic Model put forward by Aaron Antonovsky [3] is an original way of looking at the state of health. In contrast to the pathogenic approach, prevailing in medical science and concentrated on illness, the Salutogenic Model focuses on health, rejecting the traditional medical dichotomy separating health and illness. Key to this model is the identification of factors that maintain the position of a person on the "health-ease versus dis-ease continuum", or enable the person to move up towards the "health-ease" end of the continuum [34].

The position of a person on the health-ease versus dis-ease continuum changes throughout life. Health is a process of moving on the continuum that is dependent on genetic and psychosocial resistance resources such as the level of social support, coping strategies, engagement, and self-coherence. A. Antonovsky [2] constructed the Salutogenic Model by analyzing reports on the state of health of people who experienced extreme stress such as war, being a prisoner in a concentration camp, or compulsory resettlement. He noticed that some people retained a good state of physical and mental health despite such extreme experiences. According to Antonovsky, the state of health is influenced by a number of interacting factors such as generalized resistance resources, stressors, sense of coherence, behavior, and lifestyle. In his research, Antonovsky looked at studies on stressful life events, including so called daily hassles and critical life-time events relating to the set of values important to a person. The effects that such events might have on the person depend on subjective evaluations and skills to use available, and create new resources to cope with the challenges of life. Central to the theory of Antonovsky is the notion of the sense of coherence – a personality disposition that is critical in determining the state of one's health, as well as their relationship with the environment. The sense of coherence was described by Antonovsky as "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable; the resources are available to one to meet the demands posed by these stimuli; these demands are challenges, worthy of investment and engagement" [3,p. 34]. The three components of the sense of coherence are: Comprehensibility – the feeling of understanding the world, Manageability – being able to access the resistance resources in case of stress, Meaningfulness – a sense of the purposefulness of the self and the world. As regards coping with stress, all three components of the sense of coherence are significant.

Coping stress

The notion of coping with stress refers to the Transactional Model of Stress and Coping by R. Lazarus and S. Folkman [24]. This theory looks at the interaction between a person and their environment. In some situations, one may see one's position as overly stressful, in which case the resources for coping are not sufficient. The authors found that cognitive factors are superior to emotional factors under stressful conditions. Cognitive appraisal is a primary event determining emotions, which are in turn regarded as secondary. Emotions are a part of the stress transaction, occur together with cognitive appraisal, and have their own dynamics. The emotional process, together with the primary appraisal, comprise the stress transaction. In the revised theory of coping with stress by R. Lazarus [22] and S. Folkman [15], two aspects of emotions in the stress transaction are described. Emotions are interpreted either as a consequence of cognitive appraisal, or as a result of coping. Through the process of re-appraisal, emotions can reciprocally influence coping with stress in either a positive or a negative way [19]. The process of re-appraisal begins when a given relation is viewed as stressful, relative to the coping capabilities, during the process of primary appraisal. The process of primary appraisal and secondary re-appraisal happen simultaneously and are intertwined. They are the ground, based on which a coping strategy is selected. With time, coping strategies turn into coping styles defined as specific dispositions determining the individual differences in coping with stress [18].

Based on the Coping Theory by R. Lazarus [23], N. Endler and J. Parker [13] distinguish the following three styles of coping stress: the task-oriented, emotion-oriented, and avoidance-oriented style. The last one is comprised of social diversion and distraction.

Obesity-related stress

According to the literature on the subject matter, the genesis of stress in obese people is associated, inter alia, with a fast, overly stressful everyday life resulting in a constant rush, as well as a lack of physical activity, easy access to food, people paying little attention to what and how much they eat, or whether they use up the energy taken in with meals [16,36]. Therefore, the problem of an increasing wave of obesity and obesity-related disease has emerged. Medical professionals underscore that this wave of obesity is becoming an epidemic of the 21st century, especially in developed countries [4,47], including Poland [27]. Obesity is regarded as one of the civilization illnesses [33,42]. It is a cause of a number of diseases, including type 2 diabetes, hypertension, coronary artery disease [40]. It is associated with a social burden such as decreased efficiency at work, health care costs, and costs of other social benefits for people with obesity. Moreover, obesity compromises interpersonal relations and psychological well-being of those affected [6]. Difficulties in losing weight might potentiate the feeling of a lack of control over one's life. Such a feeling could lead to a formation of a low sense of coherence in overweight people. In those people who doubt in their own capabilities, and are unsuccessful in fighting off stress, avoidance-oriented and emotion-oriented styles of coping should prevail. Distraction in the form of "emotional eating" could be an example of such coping styles [35]. Unsuccessful management of obesity-related stress has physical, psychological and social ramifications. For instance, the social acceptance of people with excessive weight and obesity is becoming ever smaller. People with excessive weight are perceived as lacking self-control, not being able to control their urges, lacking strong will. They face numerous difficulties in everyday life, experience negative emotions due to physical appearance, pressure and lack of social acceptance [7,20].

Losing weight becomes one the most important parts of life. It creates frustration, when the efforts to lose weight are unsuccessful [5]. This applies especially to primary obesity, which is caused by genetic, neurohormonal, psychological, and social factors [10,43]. Some of the environmental factors that increase the risk of obesity are: stress, availability of food, eating meals high in calories or in saturated fats and salt, drinking alcohol, bad nutritional habits, taking drugs that stimulate appetite or decreased rate of metabolism, disturbances of the circadian rhythm caused by work, sedentary lifestyle.

There is a number of medical [1,10,25] and psychological [30,32,35] theories explaining the cause of obesity. The health-related and psychosocial consequences of obesity for those affected are the same regardless of age, education, or family situation [38,39]. It has been observed that obese people tend to gradually limit their social activities, which leads to social isolation, obsessive preoccupation with eating and counting calories [14,21,26].

Relationship between the sense of coherence and styles of coping stress

There is a number of studies that try to explain the psychological mechanisms of obesity as a disease [32]. The hypothesis of the relationship between the sense of coherence and coping with stress is of high significance within this research framework. It is hypothesized that a person with a strong sense of coherence is more likely to choose the right way of coping with obesity-related stress, and use their resources. People with a strong sense of coherence perceive the world as purposeful, meaningful and predictable, which gives them a cognitive and motivational basis for coping with stress [3,19]. It has been shown that the components of the sense of coherence, i.e. Manageability and Meaningfulness, correlate positively with the task-oriented and negatively with emotion-oriented and avoidance-oriented coping styles, respectively [28,35,41,47].

METHODS

Hypothesis 1. There is a relationship between the sense of coherence and styles of coping stress. Strong sense of coherence co-occurs frequently with the task-oriented style of coping stress infrequently with the emotion-oriented and avoidance-oriented styles.

Hypothesis 2. Normal-weight and obese people have different levels of the sense of coherence. Sense of coherence has an impact on the health-improving behaviors and the state of health. People with a strong sense of coherence, when faced with a long-term obesity-related stress, appraise their situation appropriately and use the task-oriented style of coping (e.g. engage in physical activity, change their diet), which results in overcoming the problem (returning to normal weight). In contrast, we hypothesized that obese people have a low sense of coherence.

Hypothesis 3. Normal-weight and obese people have different styles of coping stress. Obese people have emotion-oriented and avoidance-oriented styles of coping, and use distraction and social diversion.

Hypothesis 4. There is a negative correlation between BMI and the task-oriented style of cop-

ing stress. There is a positive correlation between BMI and the avoidance-oriented style of coping stress. There is no relationship between BMI and the sense of coherence.

Characteristics of participants

The group of obese participants comprised 31 people (15 female, 16 male) in the age of 18 to 65 years (M=38.26; SD 13.45). The group of normal-weight participants comprised 32 people (15 female, 17 male) in the age of 18 to 67 years (M=36.72, SD 14.15). The enrolment to the experimental group (nonprobability sampling) took place in the Clinic for Obesity Treatment, and was based on the medical diagnosis and BMI calculated according to the following formula: weight/height2 [42].

Sense of Coherence 29 (SOC-29) Questionnaire by A. Antonovsky [2] in the Polish version by Koniarek, Mroziak and Psikowski [31]. SOC-29 was used to describe the three components of the sense of coherence: Comprehensibility (COM), Manageability (MAN), and Meaningfulness (MEA). SOC-29 has good psychometric properties (Cronbach's alpha 0.85-0.88).

Coping Inventory for Stressful Situations (CISS) by N. Endler and J. Parker [12] in the Polish version by Strelau, Jaworowska, Wrzesniewski and Szczepaniak [37]. CISS measures the three styles of coping with stress: Task-Oriented Coping (TOC), Emotion-Oriented Coping (EOC), and Avoidance-Oriented Coping (AOC) including Distraction (DIS) and Social Diversion (DIV). Cronbach's alpha for the main scales of the Polish version of CISS is 0.74 to 0.88, which indicates a satisfactory reliability.

Biometrics Survey – to record data such as gender, age, height, body weight, necessary to calculate BMI.

RESULTS

All analyses were performed with the use of IBM Statistics 21 software.

Relationship between sense of coherence and styles of coping stress.

In order to test the hypothesis 1 on the relationship between the sense of coherence and styles of coping stress, we applied the r-Pearson test. Pearson correlation coefficients for the studied variables are presented in Tab. 1.

The general dimension of the sense of coherence (SOC) is correlated positively with Task-Oriented Coping (TOC). There is a negative correlation between the sense of coherence (SOC) and the Emotion-Oriented (EOC) and Avoidance-Oriented (AOC) Coping. Moreover, there is a negative correlation between the sense of coherence (SOC) and one of the two components of the Avoidance-Oriented Coping, i.e. Distraction (DIS). This means that, when faced with a stressful situation, people with a strong sense of coherence use task-oriented strategies for problem-solving, and are less concentrated on emotions or unnecessary activities.

Moreover, there is a significant negative correlation between Comprehensibility (COM) and Emotion-Oriented Coping (EOC), Avoidance-Oriented Coping (AOC), and Social Diversion (DIV). This means that people who perceive external and internal environmental stimuli as cognitively comprehensible are less concentrated on emotions and do not engage in social activities when faced with a stressful situation.

Furthermore, there are significant correlations between Manageability (MAN) and the styles of coping stress. This scale correlates positively, albeit moderately, with Task-Oriented Coping (TOC), negatively with Emotion-Oriented-Coping (EOC), Avoidance-Oriented Coping in one of its two forms, i.e. Distraction (DIS). This means that people with a greater feeling of Manageability, relating to their resources for coping with incoming stimuli, use task-oriented strategies for problem-solving under stressful conditions. When faced with problems, they concentrate less on the experienced emotions, and less frequently engage in distracting activities (e.g. binge-eating, watching television).

Meaningfulness (MEA) correlates positively with Task-Oriented Coping (TOC), and negatively with

Tab. 1. Correlation r-Pearsona matrix between the sense of coherence and styles of coping stress combined for both of the studied groups.

	TOC	EOC	AOC	DIS	DIV
SOC	.437**	-.584**	-.300*	-.306*	-.128
COM	.226	-.514**	-.301*	-.248	-.261*
MAN	.404**	-.497**	-.351**	-.390**	-.091
MEA	.417**	-.321*	-.020	-.068	.106

* Correlation is significant at 0.05 (two-tailed).
** Correlation is significant at 0.01 (two-tailed).

Emotion-Oriented Coping (EOC). This means that people perceiving life events as challenges are capable of solving problems in stressful situations.

Group differences in sense of coherence

In order to verify the hypothesis on the differences in the sense of coherence between normal-weight and obese participants, we used the following methods. We applied the t-Student test to compare normal-weight and obese participants with respect to the sense of coherence and its components, i.e. Comprehensibility (COM) and Meaningfulness (MEA). Manageability (MAN), due to a non-normal distribution within the group of obese patients, was analyzed with the use of the non-parametric Mann-Whitney U-test. The results are presented in Tab. 2.

Based on the results of the t-Student test, we found no significant differences on any of the scales used. Therefore, there is no ground to reject the null hypothesis assuming no differences between the mean values of the Sense of Coherence between the two groups. Similarly, we found no statistically significant differences between the groups with respect to Manageability (MAN).

Group differences in styles of coping stress

We present the results of the t-Student tests regarding differences in the styles of coping stress in Tab. 3.

As can be seen in Table 3., we found no statistically significant differences between the two groups in Avoidance-Oriented Coping (AOC) in one of its forms, i. e. Social Diversion (DIV). In contrast, we found statistically significant differences between the studied groups in Task-Oriented Coping (TOC) ($t=2.291$, $p<0.05$), Emotion-Oriented Coping (EOC) ($t=-2.053$, $p<0.05$), and Avoidance-Oriented Coping in the form of Distraction (DS) ($T=-2.371$, $p<0.05$). We can say that normal-weight people, having higher scores on the scale of Task-Oriented Coping, tend to take action in order to solve problems by cognitive re-appraisal or by changing the situation under stressful conditions. In contrast, higher scores of obese participants on the scale of Emotion-Oriented Coping suggest that, in stressful situations, they tend to concentrate on themselves and emotions such as anger, guilt, anxiety. Lastly, we found a statistically significant difference between the two groups on the scale of Distraction, which is a subscale of the Avoidance-Oriented Coping. Obese participants scored higher than normal-weight participants. This suggests that under stressful conditions they tend to think of, and experience the difficult situation. Also, they concentrate on e.g. watching television, binge-eating, thinking of pleasant things, sleeping, and so on.

Correlation between BMI, sense of coherence, and styles of coping with stress

In order to verify hypothesis 4, on the relationship between BMI, the sense of coherence, and the styles of coping stress we used correlation analysis with the use of Spearman's rho. This was due to a non-normal distribution of BMI. We present the rho coefficients in Tab. 4.

We found a significant negative correlation between BMI and Task-Oriented Coping. Moreover, BMI correlated positively with Avoidance-Oriented Coping in the form of Distraction. This means that, as BMI increases, the tendency to use Task-

Tab. 2. Significance of differences in the Sense of Coherence between obese and normal-weight participants – t-Student test.

	Student's t	df	p (two-tailed)	Means	Stand. error
SOC	1.524	61	.133	6.230	4.088
COM	.852	61	.397	1.812	1.600
MEA	1.520	61	.134	2.423	1.759

Tab. 3. Significance of differences in coping styles between the two groups – t-Student test.

	Student's t	df	p	Means	Stand. error
TOC	2.291*	61	.025	4.390	1.916
EOC	-2.053*	61	.044	-4.077	1.983
AOC	-1.408	61	.164	-2.990	2.124
DIS	-2.371*	61	.021	-3.118	1.315
DIV	.540	61	.591	.550	1.019

* significance at 0.05

Tab. 4. Spearman's rho correlation coefficients between BMI, the sense of coherence, and the styles of coping stress

TOC	-.279*
AOC	.151
DIS	.268*
DIV	-.051
EOC	.171
COM	-.029
MAN	-.183
MEA	-.140

* significance at 0.05

Oriented Coping decreases, whereas Distraction rises. Therefore, people with a higher BMI are less oriented on actively solving problems and engage in activities such as watching television or emotional eating when faced with stressful situations.

DISCUSSION

In line with hypothesis 1, we found in our sample statistically significant correlations between the sense of coherence and styles of coping stress. The higher the sense of coherence is, the more likely it is that a task-oriented style of coping will be used. Moreover, avoidance-oriented coping and distraction are used more commonly, the lower the sense of coherence gets. Our results are in line with the framework of the Salutogenic Model by A. Antonovsky [3], according to which a strong sense of coherence motivates to active coping, as well as favors the perception of stressors as manageable challenges. In contrast, a weak sense of coherence is associated with the perception of stressors as intractable challenges that one prefers not to address. Moreover, the individual components of the sense of coherence, i.e. Comprehensibility, Manageability, Meaningfulness, also correlate positively with Task-Oriented Coping, and negatively with Emotion-Oriented Coping and Avoidance-Oriented Coping. This observation is confirmed by other reports [28,41].

Hypothesis 2, on the difference in the sense of coherence between normal-weight and obese participants was not confirmed. Despite reports on the positive influence of the sense of coherence on health and health-improving behaviors [46], and contrary to the assumptions of Antonovsky's theory of the Sense of Coherence, we did not find any differences in the sense of coherence between the groups.

Hypothesis 3, assuming that obese participants, in contrast to normal-weight participants, tend to use Emotion-Oriented and Avoidance-Oriented Coping in the forms of Distraction and Social Diversion was confirmed. We found that normal-weight participants, in comparison to obese participants, scored higher on the scale of Task-Oriented Coping, and their planning with respect to problem-solving was better. Obese people prefer Emotion-Oriented Coping, which means that under stressful conditions they concentrate on emotions such as anger, guilt, anxiety. They also are more likely to choose Avoidance-Oriented Coping in the form of Distraction. Thus, they tend to avoid thinking of stressors, immerse themselves in the stressful situation, concentrate on watching television, binge-eat, think of pleasant things, sleep, and so on. Our results are in line with previously published research that indicates a positive influence of Task-Oriented Coping on the occurrence of health-improving behaviors such as physical activity, that help maintain normal weight [17]. Similarly to other authors [29,44], we also found that Emotion-Oriented and Avoidance-Oriented coping styles preferred by obese people have an unfavorable influence on the awareness of health-improving behaviors.

Hypothesis 4, on the negative correlation between BMI and Task-Oriented Coping was confirmed. We found that with increasing BMI, people are less likely to use Task-Oriented Coping, and are more likely to turn to Avoidance-Oriented Coping in the form of Distraction. This observation is in line with previously published research on the subject matter [26]. We found no associated between BMI and the sense of coherence. This can be explained based on Antonovsky's therory [3] postulating that each person is responsible for creating their own field of interest. Things outside that field cease to be important to the person. A person with a strong sense of coherence understands and accepts everything that is located outside it. Supposedly, obese participants did not perceive obesity as relevant to their health and psychophysical condition [9], and were unwilling to see obesity as something that can compromise their health [16]. Therefore, obesity was outside their field of interest, and was viewed as a natural part of their lives. It is contrary to the literature on the subject matter, regarding the positive influence of the sense of coherence on health and health-improving behaviors [7,31]. Therefore, this issue requires further research.

Our results, based on two theories, do not exhaust the explanatory capabilities of the variables modifying the strategies of coping with obesity-related stress. The issue of obesity within the framework of psychological research is present in a number of studies [6,11,14,21,32,43,45].

CONCLUSIONS:

1. Sense of coherence is positively correlated with Task-Oriented Coping, and negatively correlated with Emotion-Oriented Coping as well as with Avoidance-Oriented Coping in the form of Distraction.
2. There is no difference in the sense of coherence between normal-weight and obese people.
3. Normal-weight and obese people use different styles of coping stress. Obese people prefer Emotion-Oriented Coping, as well as Avoidance-Oriented Coping in the forms of both Distraction and Social Diversion.
4. There is a negative correlation between BMI and Task-Oriented Coping, and a negative correlation between BMI and Avoidance-Oriented Coping in the form of Distraction.

AUTHORS' DECLARATION:

Study Design: Jan F. Terelak, Adam Budka; **Data Collection:** Adam Budka; **Statistical Analysis**: Adam Budka; **Manuscript Preparation:** Jan F. Terelak; **Funds Collection:** Jan F. Terelak, Adam Budka. The Authors declare that there is no conflict of interest.

REFERENCES

1. Adam TC, Epel ES. Stress, eating and the reward system. Physiology and Behavior 2007; 91:449–58.
2. Antonovsky A. Health, Stress and Coping. New Perspectives on Mental and Physical Well-Being. San Francisco: Jossey-Bass; 1979.
3. Antonovsky A. Rozwikłanie tajemnicy zdrowia. Jak radzić sobie ze stresem i nie zachorować. Warszawa: Wydawnictwo Fundacja IPiN; 2005.
4. Babińska Z, Bandosz P, Zdrojewski T, Wyszykowski B. Epidemiologia otyłości i otyłości brzusznej w Polsce, Europie Zachodniej i USA. Kardiologia w Praktyce 2004; 3: 3-7.
5. Bąk-Sosnowska M. Między ciałem a umysłem otyłość i odchudzanie się w ujęciu integracyjnym. Kraków, Oficyna wydawnicza "Impuls"; 2009.
6. Bookwala J, Boyar M. Gender, excessive body weight, and psychological well-being in adulthood. Psychology of Women Quarterly 2008; 32:188-195.
7. Brytek-Matera A. Obraz własnego ciała u otyłych kobiet: przyczyny i stopień niezadowolenia, związek z obniżoną samooceną i strategiami radzenia sobie ze stresem. Psychiatria Polska 2010; 44(2):267-275.
8. Chanduszko-Salska J, Ogińska-Bulik N. Psychologiczna charakterystyka kobiet z nadwagą i otyłością, Wydawnictwo Uniwersytetu Łódzkiego; 2000.
9. Conradt M, Dierk JM, Schlumberger P. Who copes well? Obesity-related coping and its associations with shame, guilt and weight loss. Journal of Clinical Psychology 2008; 64(10):1129-44.
10. Dallman MF. Stress-induced obesity and the emotional nervous system. Trends in Endocrinology and Metabolism 2009; 21(3):159-165.
11. De With LM, Fokkema M, Van Straten A, Lamers F, Cuijpers P, Penninx BWJ. Depressive and anxiety disorders and the association with obesity, physical and social activities. Depression and Anxiety 2010; 27:1057-65.
12. Endler N, Parker J. Coping Inventory for Stressful Situations (CISS): Manual. Toronto, Multi-Health Systems, Inc.; 1990.
13. Endler N, Parker J. Assessment of multidimensional coping: task, emotion and avoidance strategies. Psychological Assessment 1994; 6(1):50-60.
14. Fila M, Terelak JF. Otyłość jako źródło stresu psychologicznego w funkcjonowaniu człowieka. Przegląd psychologiczny 1994; 37(1-2):105-26.
15. Folkman S. Revised coping theory and process of bereavement. In: M.S. Stroebe at al. eds. Handbook of bereavement: Consequences, coping, and care. Washington, DC: American Psychological Association Press; 2001; 563-84.
16. Foss B, Dyrstad SM. Stress in obesity: Cause or consequence? Medical Hypotheses 2011; 77:7–10.
17. Gutowska-Wyka A. Wyznaczniki radzenia sobie ze stresem u młodzieży z nadwagą i z wagą w normie. Sztuka Leczenia 2004; 10(3-4):87-93.
18. Heszen I. Psychologia stresu. Korzystne i niekorzystne skutki stresu życiowego. Warszawa: Wydawnictwo Naukowe PWN; 2013.
19. Kaczmarek Ł. Związek między poczuciem koherencji a afektem pozytywnym i negatywnym w zależności od poziomu stresu. In: Sęk H, Pasikowski T. (eds.). Psychologia zdrowia - Teoria, metodologia, empiria. Poznań: Bogucki Wydawnictwo Naukowe; 2006.

20. Laitinen J, Ek E, Sovio U. Stress-Related Eating and Drinking Behavior and Body Mass Index and Predictors of This Behavior. Preventive Medicine 2002; 34:29–39.

21. Larsson UE, Mattson E. Perceived disability and observed functional limitations in obese women. International Journal of Obesity and Related Metabolic Disorders 2001; 25(11):1705-1712.

22. Lazarus RS. Stress and emotion: A new synthesis. New York: Springer Publishing Company; 1999.

23. Lazarus RS. Coping theory and research: past, present and future. Psychosomatic Medicine 1993;55(3):234-247.

24. Lazarus RS, Folkman S. Stress, appraisal and coping. New York: Springer Publishing Co; 1984.

25. Li W, Rukavina P. A review on coping mechanisms against obesity bias in physical activity/education settings. Obesity Reviews 2009; 10:87–95.

26. Lindross AK, Lissner L, Sjostrom L. Weight change in relations to intake of sugar and sweet foods before and after weight reducing gastric surgery. International Journal of Obesity and Related Metabolic Disorders 1996; 20:634-43.

27. Mastej M, Jóźwiak J, Lukas W, Piwowarska W, Tykarski A, Orzechowski M. Epidemia nadwagi i otyłości w Polsce. Kardiologia Polska 2006; 64(supl.2):146-52.

28. McSherry WC, Holm JF. Sense of coherence: Its effects on psychological and physiological processes prior to, during and after stressful situation. Journal of Clinical Psychology 1994; 50(4):476-487.

29. Nishitani N, Sakakibara H, Akiyama I. Eating behavior related to obesity and job stress in male Japanese workers. Nutrition 2009; 25:45-50.

30. Ogińska-Bulik N. Psychologia nadmiernego jedzenia. Przyczyny, konsekwencje, sposoby zmiany. Łódź: Wydawnictwo Uniwersytetu Łódzkiego; 2004.

31. Pasikowski T. Kwestionariusz poczucia koherencji dla dorosłych SOC-29. W: Sęk, H. Pasikowski, T. (eds.) Zdrowie-Stres-Zasoby. O znaczeniu poczucia koherencji dla zdrowia. Poznań, Wydawnictwo Fundacji Humaniora; 2001:87-100.

32. Radoszewska J. Problem otyłości w teoriach i badaniach psychologicznych. Nowiny Psychologiczne 1993;4:101-111.

33. Seidel JC. Epidemiology of obesity. Seminars in Vascular Medicine 2005; 5(1):3-14.

34. Sęk H. Orientacja patogenetyczna i salutogenetyczna w psychologii klinicznej. In: Sęk, H. (ed.) Psychologia kliniczna. tom1, Warszawa, Wydawnictwo Naukowe PWN; 2001:31-7.

35. Sęk, H, Pasikowski T. (eds.) Zdrowie-Stres-Zasoby. O znaczeniu poczucia koherencji dla zdrowia. Poznań, Wydawnictwo Fundacji Humaniora; 2001.

36. Sinha R, Jastreboff AM. Stress as a Common Risk Factor for Obesity and Addiction. Biological Psychiatry 2013; 73:827–835.

37. Strelau J, Jaworowska A, Wrześniewski K, Szczepaniak P. Kwestionariusz Radzenia sobie w sytuacjach stresowych. CISS. Podręcznik, Warszawa, Pracownia Testów Psychologicznych PTP; 2005.

38. Stunkard A, Wadden T. Psychological Aspects of Sever Obesity. The American Journal of Clinical Nutrition 1992; 55:524-532.

39. Tabacchi G, Giammanco S, La Guardia M, Giammanco M. A review of the literature and a new classification of the early determinants of childhood obesity: from pregnancy to the first years of life. Nutrition Research 2007; 27:587–604.

40. Tatoń J. Zarys patogenezy otyłości. Polski Tygodnik Lekarski 1995; 50(supl. 1):3-10.

41. Terelak JF. Człowiek i stres. Bydgoszcz, Oficyna Wydawnicza Branta; 2008.

42. The World Health Organisation. Obesity. Preventing and managing the global epidemic. Report of a WHO. Consultation on obesity. Geneva 1997 ;3-5: June.

43. Tsenkova V, Boylan JM, Ryff C. Stress eating and health. Findings from MIDUS, a national study of US adults. Appetite 2013; 69:151–155.

44. Yue C, Lingjja Q. Association between lifetime stress and obesity in Canadians. Preventive Medicine 2012; 55:464-467.

45. Zhao G, Ford ES, Dhingra S, Li C, Strine TW, Mokdad AH. Depression and anxiety among US adults: associations with Body Mass Index. International Journal of Obesity 2009; 33:257-266.

46. Zahorska-Markiewicz B. Otyłość – epidemia XXI wieku. Profilaktyka i leczenie zachowawcze otyłości. Postępy Nauk Medycznych 2009; 7:494-497.

47. Zwoliński M. (1999). Sense of coherence SOC and coping styles in senior adolescent. Polish Psychological Bulletin 1999; 30(4):291-304.

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