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## A sense of coherence and styles of coping with stress of students of medical and non-medical universities

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### Abstract

The article relates to a sense of coherence and styles of coping with stress in a group of students of medical and non-medical universities. In the first part, a brief characteristics of the specifics of studies and future student work from both types of universities were presented. The issue of a sense of coherence and coping with stress in research was approximated closer. The study used a life orientation questionnaire (SOC-29) examining the sense of coherence and a questionnaire of coping in stressful situations (CISS). The level of a sense of coherence and strategies to deal with stress from students from medical and non-medical universities were compared. With the use of SOC-29 and CISS questionnaires, a group of 145 people were examined. Among the respondents there were 72 students from medical universities and 73 students from non-medical universities. In a group of students from medical universities, it has been shown that the level of sense of coherence is significantly different from the level of sense of coherence of non-medical students. The style focused on emotions was most often used in both student groups. There is a relationship between a style focused on emotions and a sense of coherence. In the study groups, no relationship was shown between the style concentrated on avoidance and the sense of coherence. The level of sense of coherence of students from medical universities is significantly different from the level of sense of coherence of students from non-medical universities. Students from both universities most often use the style concentrated on emotions, less often task style. The style focused on emotions correlates at a high level with a sense of coherence. The style focused on avoidance does not correlate with a sense of coherence. A relationship between an emotional style of coping with stress and a low sense of coherence is visible.

## Introduction

A sense of coherence is a concept deriving from a salutogenic model of health approach. It is an internal, central factor that causes people do not get sick, they deal with stress and quickly recover. The creator is A. Antonovsky, who considers that coherence is “a global human orientation, expressing the degree in which man has a dominant, lasting, although a dynamic self-confidence, that stimuli coming over life from the internal and external environment are structured, predictable and explainable. There are resources available that allow people to meet the requirements that are for them a challenge worth effort and commitment”<sup>[1]</sup>. The author assumes that the concept is not completely uniform, and moreover, it can decompose and distinguish three separate components: resourcefulness, comprehensibility and reasonability. The author understands the sense of resourcefulness as the degree to which a person perceives the available resources sufficient to meet the requirements. “Having a sense of resourcefulness, a person does not feel helpless or a victim of events, has a feeling that the difficulties and surprises of life can be remedied”<sup>[1]</sup>. The sense of comprehensibility is the degree of perceiving stimuli from both the internal and external environment in which the information is meaningful, structured and clear that a person can deal with. On the other hand, a sense of reasonability is a state (level) which a person feels in the conviction that life makes sense, and the requirements are worth the commitment and efforts. The presented component is an emotional and motivation element. From empirical research and a psychological perspective arise that the sense of coherence is a "complex personal variable that has the structure of beliefs about the world, the own person and their relations with the world <sup>[4]</sup> and affects positively on health, the ability to cope with stress and conditioning of the primary assessment of stressors”. Antonovsky states that the characteristic feature of people with a strong sense of coherence is the ability to choose the most appropriate strategy out of many possible<sup>[1]</sup>. Thanks to this skill, people with a strong sense of coherence choose the most optimal ways of coping with stress. However, it should be emphasized that a strong sense of coherence is not the same as the styles of coping with stress. The concept of coping with stress is most often presented on the basis of concepts of Endler and Parker. According to their theories, the style of coping with stress is a characteristic pattern of coping with stressful situations. Permanent personality disposition is a feature of a person and does not depend on the type of stressful situation. The type of predisposing style is multidimensional and complex <sup>[4]</sup>. The authors distinguish three styles of dealing with stress:

- 1) The style focused on the task where in a stressful situation a man takes actions and focuses on a specific task.
- 2) The style focused on emotions where a man focuses on himself and on the emotions experienced at that time that accompany it.
- 3) Avoidance-focused style where in a stressful situation a person avoids confronting the problem, avoiding thinking about it and engaging in substitute activities. Analyzing the literature of the subject on research in the space of the issues of the sense of coherence on styles of coping with stress, it should be emphasized that similar studies were carried out among others in a group of people with diagnosed arterial pressure, and in the group of patients with multiple sclerosis [<sup>8,9</sup>]. However, there is a possibility that the problem was not taken in a group of medical and non-medical university students. People who educate towards the professions such as a doctor, a nurse, a paramedic, a physiotherapist etc. very often, and actually at the very beginning of education path, are exposed to various types of loads, stressors resulting from the specificity of the future profession. In a much lesser extent people outside the medical university are exposed to psychological status, educating on other directions . Therefore, there may be significant differences in predisposed styles with stress and also in the levels of a sense of coherence.

### **Aim of the work**

The purpose of this work was to determine the sense of coherence and a predisposed, dominant style of coping with stress in medical and non-medical college students, and demonstrating whether there is a relationship between the style of coping with stress and a sense of coherence. Therefore, the following research questions have been set:

- 1) What is the level of a sense of coherence among students of both universities?
- 2) What is the dominant style of dealing with stress among medical and non-medical university students?
- 3) What is the relationship between the style of coping with stress and a sense of coherence of medical and non-medical university students?

Taking into account the above research questions, the following hypotheses were set up:

- 1) The level of sense of coherence of medical university students differ significantly from the level of sense of coherence of non-medical university students.
- 2) The style focused on the task is selected more often among students of the medical university.

- 3) The style focused on emotions is chosen more often among students of non-medical university.
- 4) Students of the medical university who use the style focused on the task have a higher sense of coherence than students using the same style from a non-medical university.

### **Materials and methods**

The research group accounted for 72 people (women and men) studying at the medical university on the fields: medical, medical rescue, health psychology, dietetics, obstetrics etc. The average age of respondents was in the range of 18-25 years. The control group accounted for 73 people (women and men) educating in a non-medical university in various fields. The average age of people from the control group also was in the range of 18-25 years. In the conducted research, a life orientation questionnaire (SOC-29) was used by A. Antonovsky (1995) consisting of 29 test positions presented in the form of questions. The test allows you to measure three components of a sense of coherence: a sense of resourcefulness, comprehensibility and reasonability. Each of the presented components of the sense of coherence is tested by means of a separate sub-scale. The SOC-29 questionnaire allows to determine the general level of a sense of coherence by summing up points obtained in specific sub-scales [15]. A questionnaire of coping in stressful situations (CISS) by N.S. Endler and J.D. Parker was used to study styles in adaption by P. Szczepanik, J. Strelau, K. Wrześniewski (1996) consisting of 48 questions covering three scales of dealing with stress: focused on the task, on emotions and avoidance. This scale also contains two sub-scales: searching for social contacts and engaging in substitute activities. The standardized CISS questionnaire shows reliability and accuracy.

### **Results and analysis**

The first research question aimed to determine the level of a sense of coherence with medical and non-medical university students. The mentioned earlier specifics of studies and future profession among medical students allowed to put a hypothesis: the level of sense of coherence of medical college students differs significantly from the level of sense of coherence of non-medical university students. The obtained results are presented in the table and in the diagram.

Table 1. The result of the t-student test for a variable a sense of coherence in a research and control group (\* resulting statistically significant in the level of significance 0.05)

Variable	Average (Medical group)	Average (Non-Medical group)	p	Standard deviation (Medical group)	Standard deviation (Non-Medical group)
SOC-29 SOC	114,74	123,40	0,04*	24,38	25,94

\* - statistically significant result at the significance level of 0.05

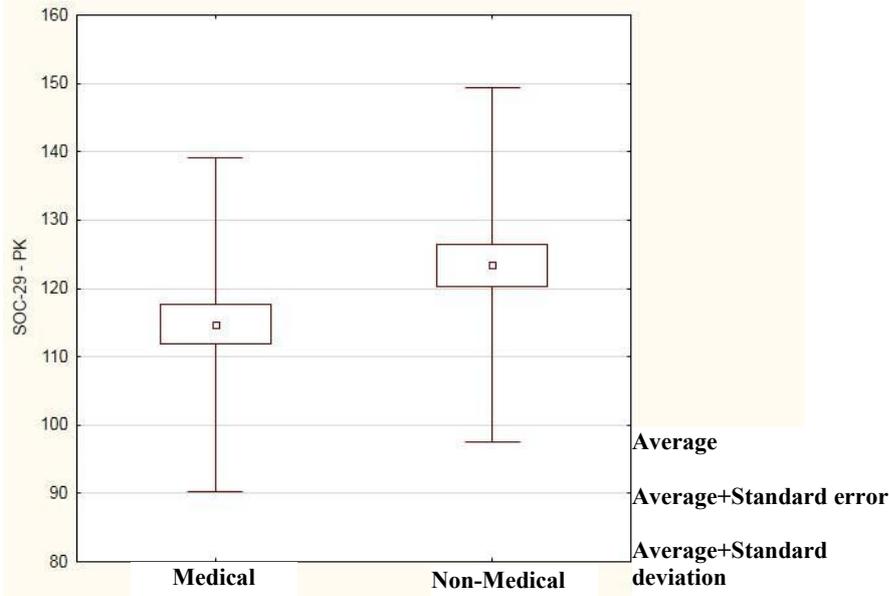


Figure 1. Graphical interpretation of the data presented in Table 1.

The average level of a sense of coherence in a group of medical college students is lower compared to the average of non-medical students - table 1. Using the t-student's test, it was established that the differences between the medium results of these groups are statistically

significant at  $p = 0.05$ . In view of the above, it can be assumed that the tested student of the medical university are characterized by a lower level of a sense of coherence compared to the control group. The level of sense of coherence has been analyzed without decoding to components, i.e. a sense of comprehensibility, reasonability, resourcefulness due to the low reliability of the questionnaire used.

The second research question included ways to deal with the stress of medical and non-medical university students. Referring to the previously mentioned specifics of future work and requirements made by the employer, the assumptions were formulated (hypothesis 2.3) and it was shown that the dominant style of coping with stress in the group of students of medical universities is a task-oriented style, while in the group of non-medical students the style focuses on emotions. The dominant style of coping with stress was determined on the basis of analysis of average results obtained among tested students. These results are presented in table 2 and a chart 2.

Table 2. The result of the t-student test for the component variable of styles of coping with stress.

Variable	Average (medical group)	Average (non-medical group)	p	Standard deviation (medical group)	Standard deviation (non-medical group)
Task-oriented style	58,61	58,19	0,79	8,98	9,56
Style focused on emotions	52,71	48,49	0,02*	10,66	10,34
Avoidance-centered style	47,61	43,81	<0,01 *	8,08	7,47

\* - statistically significant result at the significance level of 0.05

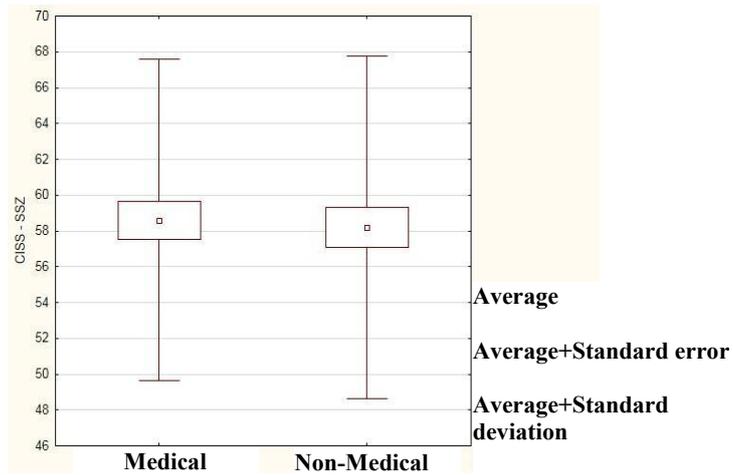
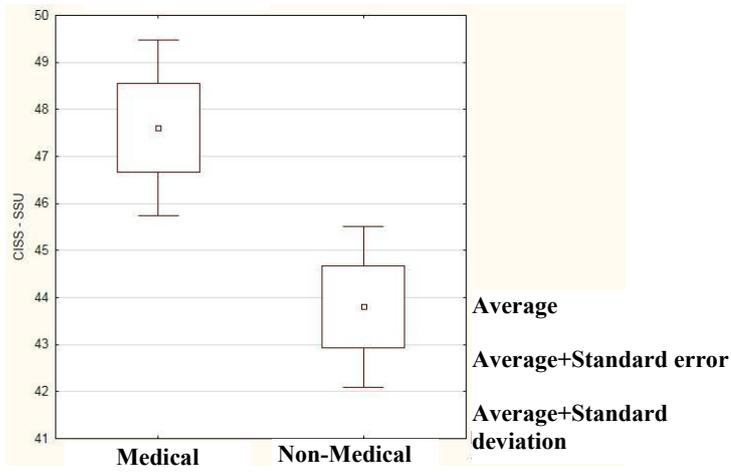
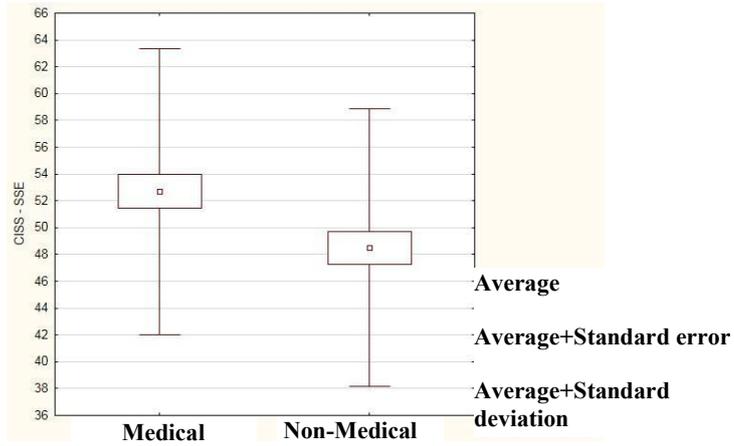


Figure 2. Graphical interpretations for the data presented in Table 2

The average level of style dealing with stress focused on a task in a group of medical university students is minimally higher compared to the average score of students from the

control group from the mathematical point of view. The result obtained is not statistically significant. On the other hand, the average level of style coping with stress focused on emotions in the group of non-medical students varies statistically and is  $p < 0.05$ . (Table, Figure 2). In connection with the above, it can be considered that the style focused on the task is not dominant in a group of medical students. However, in the group of non-medical students the style focused on emotion is dominant. Consequently, it should be stated that the adopted hypothesis 2, saying that the style focused on the task is chosen more often at students of the medical university, did not confirm while the hypothesis 3: style focused on emotions is chosen more often among students of non-medical.

Using the t-student's test, it was found that in the group of students of medical universities, the highest average score in terms of coping with stress occupies the emotional style. Differences between average results of the research and control group are statistically significant and amount to  $p = 0.02$ . Therefore, it can be assumed that the dominant style of coping with stress among students of the medical university is an emotional style (just as among students from the control group).

It seems to be interesting to be able to obtain answers to the third research problem included in the study: what is the relationship between the style of coping with stress, and a sense of coherence of medical and non-medical university students? It was predicted that due to the nature of studies and the specificity of future work, students of the medical university will show a lower level of sense of coherence, and that their dominant style of dealing with stress will be a task-style. The result of this assumption was to formulate the fourth hypothesis, which assumes the existence of a relationship between the style of dealing with stress concentrated on the task of medical students and their sense of coherence. This hypothesis has not been subjected to empirical verification, due to the fact that the dominant style of coping with stress of medical students is emotional. In view of the above, it seems about the ability to verify the relationship of the dominant style of coping with stress (emotional style) of medical university students and their sense of coherence. The answers to this question provided an analysis of correlation of styles of coping with stress and a sense of coherence (Table 3).

Table 3. Pearson correlation coefficient of variable styles of dealing with stress with a sense of coherence medical and non-medical students.

	Medical		
	CISS - AFS	CISS - TFS	CISS - EFS
SOC-29	0,04	0,35	-0,61
-SOC	0,75	<0,01	<0,01
	Non-Medical		
	CISS - AFS	CISS - TFS	CISS - EFS
SOC-29	-0,08	0,47	-0,73
-SOC	0,52	<0,01	<0,01

From the data placed in the table, you will notice that a sense of coherence correlates with a style focused on emotions and on a task in both groups, but there is no link to a style focused on emotions. This indicates the existence of a relationship between the sense of coherence and a style focused on the task and a style on emotions. It is worth noting that among the university students this relationship is greater than in the group of medical students. These are minimal differences from the mathematical and statistical points of view.

### Discussion

Medical university students are a group that is characterized by a specific future work, requiring adaptation to ethical, moral and legal principles. In many situations, medical graduates will be responsible for human life and participate in difficult mentally and physically heavy situations. Prepared to fulfil the future profession they often must participate in difficult situations, for example, during practice or qualifying examinations for medical work. All these factors can be a source of psychological stress. The analysis of the collected research material shows that students from medical universities are characterized by a significantly different sense of coherence compared to non-medical university students, which is also statistically significant. From a mathematical point of view, you can see a slightly

lower sense of coherence of medical university students compared to a group from non-medical universities. Medical university students have a different sense of coherence compared to the control group. Due to certain deficiencies in the construction of a research tool, a sense of coherence has been investigated as a unified construct containing three components (sense of comprehensibility, resourcefulness and reasonability). The conducted research on the SOC-29 factor structure allow to conclude that one dominant factor was identified in all known studies using an explorative factor analysis. However, in all or almost all the existence of at least one weaker factor (especially in Polish trials) has been disclosed. A few studies with the use of a paragraph of factor analysis did not confirm the one-factor structure. Thus, the dominant factor cannot be identified with a sense of coherence. In many studies, it corresponds to a sense of reasonability in combination with optimism elements. Exploratory analyzes, as well as confirmatory did not confirm the existence of factors clearly corresponding to two other SOC components, which allows to interpret the results in the Sub-scales of comprehensibility and controllability with great care. From the perspective of the possibility of assigning a simple interpretation, the sub-scale of comprehensibility is slightly more optimistic than the sub-scale of controllability [15]. Michał Zwoliński in his work "Controversies regarding the factor structure of the Life Orientation questionnaire (Scale Soc)by A. Antonovsky" carried out a hierarchical factor analysis, which revealed the existence of one general(secondary)factor moderately burdening almost all items of the scale. The existence of such a factor may partly explain difficulties in identifying factors corresponding to SOC components [15]. Referring therefore to a part of the article and many studies concluded and carried out in it, the SOC-29 questionnaire was used to assess the sense of coherence as one factor without analyzing individual components. The conducted among students gave a picture not only a sense of coherence, but also styles of coping with stress in these groups. The research shows that students of both universities in stressful situations most often use the style focused on emotions. This style is characterized by people who in difficult time focus on each other and what they feel at the moment, and at the same time try to unload the tension, which contributes to increasing the feeling of negative emotions. The least used style of dealing with stress among students of both universities turned out to be a style concentrated on a task, which is characterized by focusing on identifying the problem and searching for its solution. The assumption regarding the use of a task-on-style at students of medical universities did not confirm, and on the use of emotional style in non-medical university students confirmed. It is worth noting that students from both universities immediately after using the emotional style, used a style concentrated on avoidance. This

style has a tendency to avoid thinking, experiencing stressful, unpleasant situations. In addition, it has been shown that the level of sense of coherence of medical university students is significantly different from the level of sense of coherence of non-medical students. In view of the above, the question should be asked: Is there a relationship between styles of dealing with stress and a sense of coherence of students of both universities? The results of the research showed that in the both student groups there is a relationship between the emotional style of dealing with stress and the level of a sense of coherence (visible high negative correlation). To a lesser extent, there is a tasking relationship to deal with stress and a sense of coherence. However, the avoidance style used by students does not show the relationship with their sense of coherence. It can be assumed that both students from medical and non-medical universities using a concentrated style on emotions are characterized by a lower sense of coherence. The presented results correspond with the thesis of Antonovsky [1], which says that a feature characterizing people with a high sense of coherence is the ability to choose the most suitable tactics to deal with stress, and people with a low level of coherence will use a less favourable coping style. The relationship of the sense of coherence with styles of coping with stress was often the object of verification in various groups, among professional soldiers, people with multiple sclerosis, young people bringing up in educational centers and homes, parents of children with cerebral palsy or parents of adult children suffering from schizophrenia [13,8,7,2,6]. However, it cannot be determined whether it was examined in the population of medical and non-medical university students. Therefore, it was interesting to conduct a study in a selected academic population. It should be added that a relationship of a sense of coherence with styles of coping with stress has been shown in many research works. For example, in research covering professional soldiers, the results obtained were similar to the student research. Professional soldiers were characterized by a lower sense of coherence compared to the control group. The most often style focused on avoidance [13] was used. Analyzing the obtained results you can see the compound of the nature and specificity of the work of both groups, because both students of the medical university and professionals are exposed to numerous stressors and mental burden. According to research, people with a low sense of coherence more often choose a less beneficial style of coping. An interesting picture of the problem can be seen in research conducted among patients with multiple sclerosis [8]. Research results showed that the level of a sense of coherence has an impact on the level of emotional style, and people with a low sense of coherence are more likely to use emotional style in dealing with stress situation in both chronic and health disease. In contrast, among the patients who have a higher sense of coherence, a focus on the avoidance was most often

chosen. Also research among young people from educational centers and the youth raising in family homes showed that the first ones have a low sense of coherence, and thus they choose less favourable styles of stress [7]. Interesting results have provided studies of parents of children with cerebral palsy. It has been found that the overall level of a sense of coherence is lower in parents of developing children properly. A high sense of coherence with parents of children from MPD is associated with concentration on a task-on style dealing with stress. Parents who are characterized by a low sense of coherence more often used a style concentrated on emotions [2]. Similar studies were carried out among a group of parents of adult children diagnosed with schizophrenia. The obtained results were similar to the cited studies. In the parents of adult children with schizophrenia, the task-oriented style dominated. Moreover, the researchers showed that the sense of coherence and the styles of coping with stress correlate with each other in the group of parents of adult children diagnosed with schizophrenia and that their sense of coherence is associated with the task-oriented style of coping with stress [6]. Other studies on the sense of coherence have been conducted among Swedish nurses. The group was tested with the shortened version of the questionnaire examining the sense of coherence. The results showed that nurses had a lower level of sense of coherence compared to the general population and higher in the international nurse comparison. The results of this study had an impact on how nurses could cope with work-related stress [3]. The sense of coherence has also been studied in the context of improving the health of people suffering from depression. The study was aimed at checking whether the behaviours of the sick were associated with a sense of coherence or with depression. Studies have shown that leisure time behaviours were a predictor of a greater sense of coherence and lower symptoms of depression. A greater level of the sense of coherence was associated with less perceived stress and weaker depressive symptoms [12]. American researchers conducted an interesting study on the styles of coping with stress among students of radiology. Women and men were examined, but no significant differences were found between task-oriented and maladaptive emotional coping with stress. More men used the avoidance-oriented style, and women with higher levels of stress more often used mechanisms based on the emotional and avoidant coping style than those with a lower overall level of stress [11].

Based on the results of his own research and cited other studies in other groups and environments, it can be seen that Antonovsky's claim about the link between the level of the sense of coherence and the styles of coping with stress is still valid. In all studies, people with a lower sense of coherence chose less favourable stress coping styles. On the other hand,

people from groups exposed to mental stress, difficulties related to the specificity of work, profession, educational environment or health, show a lower sense of coherence. Research in a group of students of medical and non-medical universities confirmed this relationship.

Stress coping strategies are a kind of constant preferences that manifest themselves due to some individual temperamental factors; however, it is possible to work on changing the style of coping with stress and to pursue more favourable strategies [5].

### **Conclusions**

Based on the research, the following conclusions can be drawn:

- 1) The level of student coherence of both universities differs significantly from each other.
- 2) Students from both universities most often use the emotional-focused style, less the task-oriented style.
- 3) Emotional-focused style correlates at a high level with a sense of coherence.
- 4) Avoidance-focused style does not correlate with the level of the sense of coherence.
- 5) There is a visible relationship between the emotional style of coping with stress and a low sense of coherence.

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