

Sense of coherence and assessment of theoretical and practical preparation for the paramedic profession

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Abstract

Paramedics are very well educated healthcare professionals to manage life- and health-threatening conditions.

In a few studies regarding the effects of the sense of coherence on various planes of professional life of paramedics, an attempt was made to determine the relationships between this personality variable and assessment of preparation for profession, which translated into professionalism of the medical interventions undertaken.

The individuals assessing the theoretical and practical preparation as good were characterised by significantly higher levels of the sense of coherence (SOC) and the sense of manageability, as compared to those who considered their practical preparation superior to theoretical one.

The participants reporting not enough theoretical knowledge provided concerned mainly anatomy and physiology had significantly lower mean scores ($p=0.004$) assessing the sense of comprehensibility, as compared to those pointing out insufficient knowledge of pharmacology they were taught.

The sense of coherence is a variable affecting the diversification of paramedics in assessing the theoretical and practical preparation for their profession.

Key words: SOC, paramedic, system of education

Introduction

According to the concept of salutogenesis coined by Antonovsky, the sense of coherence is “ a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that 1) the stimuli deriving from one`s internal and external environments in the course of living are structured, predictable and explicable; 2) the resources are available to one to meet the demands posed by these stimuli and 3) these demands are challenges worthy of investment and engagement” [1]. The sense of coherence comprises comprehensibility, manageability and meaningfulness [1, 2].

The sense of comprehensibility is the way human beings perceive the stimuli from the internal and

external environments as comprehensive, ordered, coherent and clear. Individuals with strong sense of comprehensibility expects that the future stimuli will be predictable. In the worst case, the individual expects that even if the stimuli are surprising, he/she will be able to assign them to something and explain them. This a cognitive variable.

The sense of manageability (control) is the extent people perceive the available resources as sufficient to meet the demands. In cases when the stimuli are undesirable, individuals with high sense of manageability believe there is a high probability of successful management within the expected limits of reasonability. In the worst case, consequences of an unfavourable event are bearable. The resources needed to meet these demands are the one`s own

resources or those of other people we trust and can rely on (a spouse, friends, God, history). This component is cognitive-instrumental [1, 2].

The sense of meaningfulness expresses motivation [1] and determines the extent to which the individual feels that life is meaningful, is worth effort, devotion and engagement. Individuals with strong sense of meaningfulness always participate in important life spheres, notice problems as challenges, which are worth engaging in, search for their meaning and undertake efforts to solve and cope with problems [2]. As opposed to the two dimensions mentioned earlier, meaningfulness is an emotional-motivating component indicating a deep sense of life. The individuals with strong sense of meaningfulness feel that the event is important, valuable, hence worthy engaging in [3].

Although the above mentioned components are dynamically interrelated, Antonovsky believes that the motivating component of meaningfulness is essential; when individuals lack it, comprehensiveness and manageability can be short-lasting [1,4,5].

Aim

To determine the effects of the sense of coherence on assessment of theoretical and practical preparation for the paramedic profession.

Material and methods

The study group consisted of 336 professionally active paramedics working in ambulance emergency teams all over Poland.

The study design was approved by the Bioethics Committee of the Faculty of Health Sciences, Jan Kochanowski University of Humanities and Sciences in Kielce (04.06.2010; No. 22/2010). The research standardized tool suitable for the study aim, fulfilling psychometric requirements and adjusted in terms of intercultural issues [1,6], was the Polish language version of the Sense of Coherence - 29 (SOC-29) questionnaire.

The SOC scale has been used and verified in various sociological, socio-medical and psychiatric studies [7, 8, 9, 10, 11].

Moreover, a questionnaire was designed, which involved selected aspects of preparation for profession and its practice. Only a part of results

Table 1. Mean values of coherence, comprehensiveness, manageability and meaningfulness in the groups assessing theoretical and practical preparation. Analysis of variance for intergroup differences

| Dependent variables | Assessment of theoretical and practical preparation | | | | | | | | F | p | Intergroup differences (REGW F) |
|----------------------------------|---|-------|---|-------|---|-------|------------------|-------|------|-------|----------------------------------|
| | Good theoretical and practical preparation 1 | | Better theoretical than practical preparation 2 | | Better practical than theoretical preparation 3 | | No preparation 4 | | | | |
| | \bar{X} | SD | \bar{X} | SD | \bar{X} | SD | \bar{X} | SD | | | |
| Comprehensiveness | 49.99 | 9.85 | 47.91 | 9.02 | 46.14 | 8.42 | 44.75 | 6.69 | 2.83 | 0.038 | |
| Manageability | 51.67 | 8.50 | 50.47 | 8.28 | 46.94 | 8.02 | 47.69 | 8.28 | 3.46 | 0.017 | Difference between group 1 and 3 |
| Meaningfulness | 44.50 | 7.21 | 43.47 | 7.35 | 41.00 | 6.86 | 43.69 | 7.91 | 2.09 | 0.102 | |
| General sense of coherence (SOC) | 146.17 | 22.50 | 141.85 | 21.55 | 134.09 | 20.17 | 136.13 | 18.96 | 3.35 | 0.019 | Difference between group 1 and 3 |

of this wide-scope research project was presented.

A diagnostic survey method was applied using the above mentioned questionnaires.

Results

The comparison of mean values of the sense of coherence and its components in the study groups differing in their assessment of theoretical and practical preparation was performed using the analysis of variance ANOVA. The “intergroup differences” column contains the pairs of groups with statistically significant differences according to the Ryan-Einot-Gabriel-Welch F test (Table 1 and Fig. 1-2).

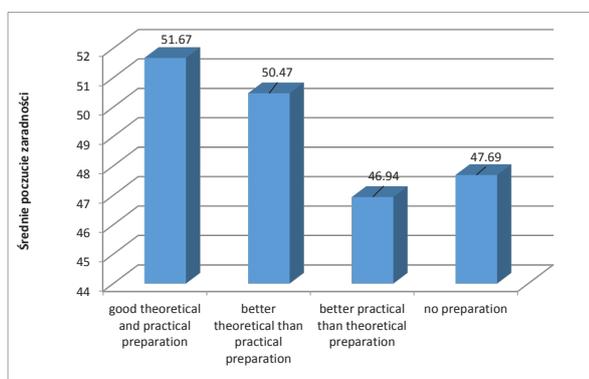


Fig. 1. Sense of manageability in the groups assessing theoretical and practical preparation

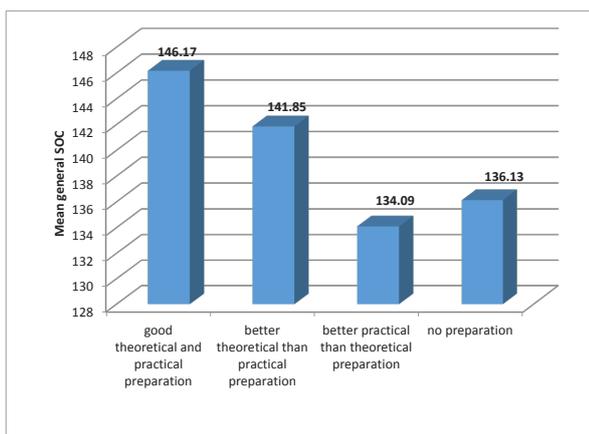


Fig 2. Sense of coherence in the groups assessing theoretical and practical preparation

The participants assessing theoretical and practical preparation as good had a significantly higher level of manageability, as compared to

those stating better practical than theoretical preparation. The assessment in the first group was affected by higher sense of manageability. The available resources were considered sufficient to meet the demands.

The participants who chose the first option had a significantly higher value of general sense of coherence (mean SOC - 146.17) than those who chose the third answer (mean SOC -134.09). The strong sense of coherence in the former group resulted in perceiving the external stimulus as predictable thanks to the appropriate amount of theoretical and practical knowledge provided for practicing the profession. These individuals were able to cope with the challenge; therefore, they assessed their theoretical and practical education as good.

The assessment of theoretical knowledge in the individual subject blocks was found to be significantly diversified by the sense of comprehensiveness. The results are presented in table 2. Fig. 3 contains the distribution of the sense of comprehensiveness in individual types of answers.

The individuals finding that the insufficient amount of theoretical knowledge provided predominantly concerned anatomy and physiology had significantly lower mean scores of comprehensiveness ($p=0.004$), as compared to those that chose pharmacology.

The knowledge of anatomy and physiology seems to be essential for the faculty of emergency medicine. The group of paramedics reporting insufficient amount of knowledge on these subjects was characterised by lower sense of comprehensiveness. The incoming information regarding anatomy and physiology were incomprehensible, unordered and unclear. The group of paramedics reporting insufficient amount of knowledge regarding pharmacology understood the essence of good anatomy- and

physiology-related knowledge depending on the knowledge concerning pharmacology. Higher sense of comprehensiveness in this group of paramedics demonstrates their understanding of the essence of too few hours of pharmacology in relation to the knowledge of anatomy, and particular of physiology. Insufficient knowledge of pharmacology is perceived as a predictable stimulus faced during emergency services, which should be related to the knowledge of anatomy and physiology. .

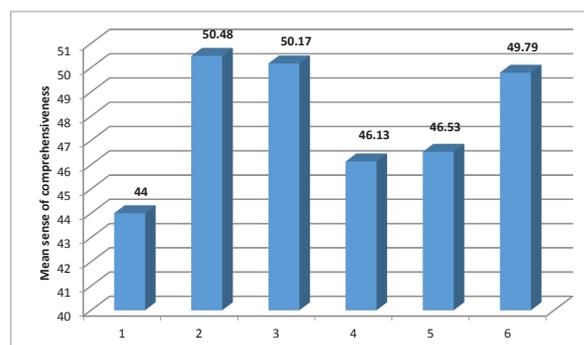


Fig 3. Distribution of sense of coherence in individual groups of answers

Abbreviations: 1 - Anatomy and physiology, 2 - Pharmacology, 3 - Life-threatening conditions, 4 - Emergency medicine, 5 - Emergency rescue interventions, 6 - Sufficient number of hours.

Table 2. Comparison of mean senses of coherence and its components in the groups assessing theoretical knowledge provided in individual subject blocks

| Dependent variables | Answer | | \bar{X} | SD |
|---------------------|--------|--------------------------------|-----------|-------|
| Comprehensiveness | 1 | Anatomy and physiology | 44.00 | 8.18 |
| | 2 | Pharmacology | 50.48 | 10.40 |
| | 3 | Life-threatening conditions | 50.17 | 8.91 |
| | 4 | Emergency medicine | 46.13 | 8.25 |
| | 5 | Emergency rescue interventions | 46.53 | 7.81 |
| | 6 | Sufficient number of hours | 49.68 | 10.07 |
| Manageability | 1 | Anatomy and physiology | 48.88 | 7.54 |
| | 2 | Pharmacology | 51.25 | 9.94 |
| | 3 | Life-threatening conditions | 50.71 | 8.65 |
| | 4 | Emergency medicine | 50.00 | 8.44 |
| | 5 | Emergency rescue interventions | 48.61 | 7.03 |
| | 6 | Sufficient number of hours | 51.93 | 8.64 |
| Meaningfulness | 1 | Anatomy and physiology | 43.27 | 7.87 |
| | 2 | Pharmacology | 43.72 | 7.85 |
| | 3 | Life-threatening conditions | 43.78 | 6.85 |
| | 4 | Emergency medicine | 43.36 | 7.30 |
| | 5 | Emergency rescue interventions | 42.50 | 6.83 |
| | 6 | Sufficient number of hours | 44.56 | 7.70 |
| General SOC | 1 | Anatomy and physiology | 136.15 | 19.46 |
| | 2 | Pharmacology | 145.44 | 25.20 |
| | 3 | Life-threatening conditions | 144.66 | 21.93 |
| | 4 | Emergency medicine | 139.49 | 19.23 |
| | 5 | Emergency rescue interventions | 137.64 | 18.44 |
| | 6 | Sufficient number of hours | 146.17 | 23.92 |

Table 3. Analysis of variance of SOC in the groups assessing the amount of theoretical knowledge in individual subject blocks

| Dependent variables | F | p | Intergroup differences (REGW F) |
|---------------------|------|-------|----------------------------------|
| Comprehensiveness | 3.54 | 0.004 | Difference between group 1 and 2 |
| Manageability | 1.56 | 0.171 | |
| Meaningfulness | 0.67 | 0.643 | |
| General SOC | 2.11 | 0.064 | |

Discussion

Considering increasing civilisation hazards, health-related problems and health consciousness of modern societies, hence their growing demands, as well as stress resulting from contacts with ill and suffering individuals, in many cases with life-threatening conditions, emergency medicine is a difficult profession demanding high qualifications and continuous updating of medical knowledge.

Moreover, education should not end with receiving a diploma. Continuous education, eagerness to discover new horizons of knowledge, renewing certificates, avoiding being infallible as well as critical approaches to the level of obtained knowledge are required.

Life orientation, which is the sense of coherence, affects one's views on the surrounding reality, as well as on various aspects of everyday, social and professional life. The stimuli incoming from the internal and external environments can be variably predictable and explicable, hence various levels of coping with the demands imposed by these stimuli, which determine whether the demands are worth effort or otherwise.

In our study, an attempt was made to determine the effect of the sense of coherence on the assessment of theoretical and practical preparation for paramedic profession reported by paramedics. Our findings revealed that the level of coherence and its component of manageability was statistically significantly different in the study groups, being higher in the group considering

theoretical and practical preparation as good, compared to the group stating that practical preparation was better than the theoretical one. The assessment of individual subject blocks was determined by the sense of comprehensiveness. The individuals reporting insufficient amount of knowledge on anatomy and physiology had significantly lower mean scores regarding the sense of comprehensiveness, as compared to those who chose pharmacology. Our findings are difficult to compare as the literature lacks any reports on the issues analysed.

Individuals with strong sense of coherence consider knowledge a potential resistance resource and search for it in cases where it could be useful rather than lead to overburden [1]. In the profession of paramedics, the knowledge based on the most modern medical advances, obtained already during the process of education, should be the most important resistance resource; it should be comprehensible and motivated by strong sense of meaningfulness, which should prevent the change of the tension associated with its lack into stress.

A stressor is an element, which introduces entropy into the system, i.e. life experience characterised by the lack of coherence (consistency), under- or overburden and lack of involvement in decision-making [1].

The health conditions of workers are highly dependent on their ability to cope with stress while the way of managing stressful situations is

largely determined by perception and evaluation of ourselves as well as our potential skills to deal with a given stressful situation. The efficacy of fighting stress is determined by the sense of coherence, i.e. the effect of subjective management in accordance with ourselves and the external situation. Individuals with strong sense of coherence effectively manage the professional stress as they perceive the nearest surroundings as clear, comprehensible and meaningful and consider themselves resourceful [12].

Conclusion

The sense of coherence is a variable affecting the diversification of paramedics in their assessment of theoretical and practical preparation for profession.

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