Sense of coherence and its associations with psychosocial health: results of survey of the unemployed in Kaunas

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Key words: *unemployment; psychosocial health; sense of coherence; salutogenesis.*

Summary. *Objective. To evaluate the associations between sense of coherence and psychosocial health among unemployed adult population.*

Material and methods. The data were collected during a cross-sectional study in 2005. There were 429 filled-in questionnaires received (response rate, 53.6%) from unemployed persons registered at the Kaunas Labor Market Office (Lithuania). For the assessment of the sense of coherence, a short 13-item version of the Orientation to Life Questionnaire was used. Long-term unemployment was defined as lasting 12 months or longer. Logistic regression was used to estimate the risk factors having influence on sense of coherence. The risk was evaluated using odds ratio (OR).

Results. The mean score for sense of coherence was 56.6±11.2 (min, 13; max, 91). Significantly higher sense of coherence was found among the short-term unemployed as compare to the long-term ones. Analysis showed that sense of coherence was significantly higher in males, more educated and less materially deprived groups. The findings indicated that persons with depression, suicide intentions, more intensive alcohol consumption (after the job loss), poor self-reported health, feelings of loneliness and shame, and poor relations with family reported lower sense of coherence. The risk of low sense of coherence was significantly higher for females (OR=2.97) and the long-term unemployed (OR=1.81). Nevertheless, higher education (OR=0.73) and income (OR=0.83) were the factors that significantly improved sense of coherence.

Conclusions. Sense of coherence was low among the unemployed in Kaunas. Sense of coherence was lower among the unemployed with negative psychosocial health characteristics in comparison to the unemployed with positive characteristics.

Introduction

Antonovsky proposed the theory of salutogenesis, which states that health is a continuum from complete health till death. People are moving from one to another direction of this continuum during their entire lifetime. The direction depends on person's ability to manage situations, which occur due to existence of internal or external stressors. Some resources are given to person to manage these situations. One of them is sense of coherence (SOC), which briefly could be defined as a person's view to life and capacity to respond to stressful situations (1). This characteristic is evaluated using Orientation to Life Questionnaire (2). This scale is widely accepted by the scientific community and commonly used in various studies. More than 500 papers that analyzed SOC have been published in the past 25 years (1). These studies support a positive impact of strong SOC on coping with stressful life events (3).

Previous studies suggest that the loss of job is one of the most powerful stressors in adulthood (4, 5). The outcomes of stress due to involuntary unemployment can lead to negative changes in lifestyle and psychosocial wellbeing, and subsequently to general ill health (6, 7). It could be predicted that individuals with strong SOC pass this easier as compared to those with low SOC. However, only few attempts have been made in evaluation of SOC among unemployed population (8–10). To the best of our knowledge, only two papers were published on evaluation of associations between unemployment, SOC, and health (11, 12). In the survey of SOC as a predictor of suicidal behavior, unemployment was used as one of the background variables (11). The study by Hanse and Engstrom was

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aiming at investigation of the relationship between employment status, ill health, and SOC. However, the referred study was carried out only on former workers of selective factory (the Volvo Kalmar plant, Sweden), and psychological health was evaluated setting priorities to specific symptoms, as concentration difficulties, restlessness and tension problems, anxiety, sleeping problems, and low mood (12). Such psychosocial aspects as depression, suicidal intentions, shame, loneliness, relations with other family members, and their interrelations with SOC and unemployment have not been analyzed up to now. This argues that there is a need for further studies in this field.

The aim of our study was to evaluate the associations of sense of coherence and psychosocial health among unemployed adult population.

Materials and methods

This study was performed in Kaunas Labor Market Office (Labor Office, hereafter) in 2005. The analysis herein covered the officially registered unemployed persons in Kaunas. Due to the legislation system of Lithuania, it was not allowed to use the database of Kaunas unemployed people in order to perform random selection of respondents. In this case, questionnaires were distributed to individuals who attended the special meeting in the Labor Office. The participants of these meetings were selected according to the day of registration at the Labor Office. Therefore, it could be stated that respondents were randomly selected. The administration of the Labor Office and the Bioethics Centre at Kaunas University of Medicine granted the permission to perform this study.

The total number of filled-in questionnaires was 429 (response rate, 53.6%). The investigated study sample represented general population of unemployed in terms of main demographic characteristics (gender and age).

The questionnaire included questions on subjective health, behavioral risk factors (smoking and alcohol consumption), and psychosocial health (stress, depressiveness, suicide intentions, loneliness, relations with family members). In order to evaluate the impact of job loss to respondents' health, retrospective questions were added. Beck Depression Inventory (BDI) was used to measure the severity of depressive symptoms (13). The use of scale in this study was described in other publications of the authors (14).

Antonovsky's 13-item scale (SOC-13) was used to assess a sense of coherence. Each item was scored from 1 (most often, the worst possible position) to 7 (never, the best possible position). All items were then summed to create a total SOC score, which ranged from 13 to 91. The higher SOC score indicates the greater SOC (15). Antonovsky did not instruct how to define high SOC. In this study, SOC was considered as high when it was higher than the median of all sample (M_e=57). Separate components (manageability, comprehensibility, and meaningfulness) were measured. The general internal consistency was strong enough (Cronbach's alpha of the scale was 0.733).

In the analysis, the long-term and short-term unemployed were compared. A person who was unemployed for 12 months or more was defined as long-term unemployed.

The statistical significance of difference between two groups was assed using a two-tailed Student (*t*) test for continuous variables. Continuous variables were presented as a mean and its standard deviation ($\overline{x}$ ±SD). The correlation between two continuous variables was assessed using Pearson correlation (*r*) coefficient. Significance level (*P*) less than 0.05 was considered as statistically significant. One-way ANOVA was used to test the difference between two or among more than two independent groups. *F* criterion was used for evaluation of these differences.

For evaluation of the impact of explanatory variables on analyzed event (binary dependent variable), *enter* model of logistic regression was used. The dependent variable was low SOC. Sex, age, education, place of residence, marital status, income, practiced religion, duration, and episodes of unemployment were used as independent variables. Risk was measured using the odds ratio (OR) with the 95% confidence interval (CI).

Data were analyzed using the Statistical Package for the Social Sciences for Windows, version 13.0 (SPSS for Windows 13).

Results

Before proceeding with the presentation of SOC level, it is important to present general health of the unemployed. The survey indicated that 40% of the unemployed evaluated their health as good and reasonably good and 14.7% as poor or rather poor. A significant proportion of the respondents reported that job loss had a negative impact on their lifestyle. This event caused more intensive smoking in 14.5% of the investigated unemployed, whereas 9.3% declared reduced smoking frequency. Seven percent of the respondents reported that they started to drink more after job loss. Meanwhile, a bigger proportion (11.2%)

reduced alcohol consumption. Only one-fifth of the study participants investigated had no episodes of stress during the past month. The biggest proportion (46.2%) of respondents experienced stress somewhat, but not usually. Quarter of them experienced stress more often than people in general; 7% indicated that their life is nearly unbearable. Results indicated that a considerable part of the unemployed (41.3%) often or always felt shame due to their present social status. Worse relations with family members after job loss were reported by a quarter of the respondents. Moreover, 35.4% of respondents felt an onset of loneliness after job loss. The prevalence of depression (by BDI) was 35.7% among the unemployed in Kaunas. Suicidal intentions were experienced by 23.8% of the study participants.

The concept of SOC proposed by Antonovsky describes a person's orientation to life and surrounding world. People with high SOC are more oriented to life than those with low SOC. Comparisons of mean scores of SOC-13 scale and subscales among the groups of the unemployed are presented in Table 1. The findings indicated that the mean scores of SOC-13 scale and subscales (comprehensibility, manageability, and meaningfulness) were significantly higher among the short-term unemployed compare to the long-term ones.

In order to evaluate the associations between SOC and other continuous variables (length of unemployment, episodes of unemployment, and BDI index), Pearson correlation coefficients were calculated (Table 2). The sense of coherence was likely to decrease as the length of unemployment and unemployment episodes tended to increase. Moreover, a strong negative correlation between SOC and BDI was established. This emphasizes that orientation to life among the unemployed tended to decrease as symptoms of depression become more severe.

SOC levels were significantly lower for females, lower educated, and more materially deprived groups (Table 3). Self-reported health, alcohol consumption, stress, depression, shame, suicidal intentions, relations with family members, and loneliness appeared to be associated with different levels of SOC (Table 4). The most significant difference in the SOC score was observed between the groups with different depression level: the unemployed with depression symptoms had the mean SOC score lower by 10.4 points as compared to the unemployed without depression. Significant differences in the SOC score were disclosed between the groups of different alcohol consumption, suicidal intentions, self-reported health, and loneliness.

Results from logistic regression analysis showed that female gender (OR=2.97) and long-term unemployment (OR=1.81) increased the risk of experiencing low SOC; however, higher education (OR=0.73) and higher income (OR=0.83) had a positive impact on SOC (Table 5).

Table 1. **Mean scores of SOC-13 scale and subscales in different unemployed groups**

Variable	Unemployment duration ($\bar{x}$±SD)		Total ($\bar{x}$±SD) N=429	t (p)
	Short-term N=234	Long-term N=195		
Comprehensibility (min – 5. max – 35)	20.8±5.4	19.1±5.5	20.0±5.5	3.21 (p<0.01)
(Su)valdomumas (min – 4. max – 28)	16.9±4.4	15.9±4.2	16.4±4.4	2.40 (p<0.05)
Prasmingumas (min – 4. max – 28)	21.0±3.7	19.1±4.2	20.2±4.0	4.92 (p<0.001)
SOC-13 (min – 13. max – 91)	58.7±10.9	54.1±11.1	56.6±11.2	4.31 (p<0.001)

$\bar{x}$±SN – mean and its standard deviation; N – number of observed persons; P – significance level comparing the groups of short-term and long-term unemployment.

Table 2. **Correlation of a sense of coherence with selected variables (Pearson correlation coefficients)**

Variable	Length of unemployment	Episodes of unemployment	BDI index
Suprantamumas	–0.194 (p<0.01)	–0.097 (p<0.05)	–0.470 (p<0.01)
(Su)valdomumas	–0.067 (NS)	–0.169 (p<0.01)	–0.494 (p<0.01)
Prasmingumas	–0.242 (p<0.01)	–0.019 (NS)	–0.409 (p<0.01)
SOC-13	–0.209 (p<0.01)	–0.120 (p<0.05)	–0.572 (p<0.01)

p – significance level; NS – not significant; BDI – Beck Depression Inventory; SOC – sense of coherence.

Table 3. **Comparison of mean scores of sense of coherence in different sociodemographic groups of the unemployed**

Variable	($\bar{x}$±SD)	F	df	p
Gender				
Males (N=153)	58.9±10.0	10.426	1	0.001
Females (N=276)	55.3±11.6			
Age group, years				
16–24 metai (N=62)	57.6±9.0	2.064	4	0.085
25–34 metai (N=105)	58.3±11.1			
35–44 metai (N=120)	55.7±10.5			
45–54 metai (N=111)	54.8±12.8			
55–64 metai (N=31)	58.1±11.4			
Level of education				
Tertiary (N=156)	58.4±11.0	3.575	2	0.029
Secondary (N=238)	55.7±11.4			
Primary (N=35)	54.4±9.5			
Marital status				
Cohabitation / married (N=236)	56.8±11.4	0.173	1	0.678
Single (N=193)	56.4±11.0			
Place of residence				
Urban (N=378)	56.7±11.1	0.375	1	0.541
Rural (N=51)	55.7±12.2			
Income per family member per month				
More than 400 LTL (N=121)	60.4±10.4	11.405	2	0.000
200–399 LTL (N=142)	56.1±11.4			
Less than 199 LTL (N=166)	54.3±10.8			
Satisfaction with personal economic situation				
Satisfied (N=66)	61.9±11.2	18.257	1	0.000
Not satisfied (N=363)	55.6±10.9			
Lack of money for food				
Never or sometimes (N=293)	58.3±10.6	23.238	1	0.000
Always or often (N=136)	52.9±11.5			
Lack of money for housing taxes				
Never or sometimes (N=269)	58.5±10.8	21.034	2	0.000
Always or often (N=160)	53.5±11.1			

$\bar{x}$±SN – mean and its standard deviation; F – criterion of analysis of variance; P – significance level; df – degree of freedom.

Discussion

The sample size for this survey was calculated based on data from Labor Office. A total of 10 027 unemployed were registered in Kaunas on January 1, 2005. Meanwhile, the Lithuanian Department of Statistics (LDS) states that the real number of unemployed people was 2–2.5-fold higher than that officially registered at the Labor Office. This could lead to not complete coverage of the unemployed. However, attempts to form a sample using LDS data would face several problems. The main difficulty would be in defining of the unemployed population (LDS provides the level of unemployment based on household survey). Another problem could be that in this case respondents for the study should be selected from various sources, i.e. labor offices, private companies, etc. In addition, this study did not have a control group. Similar design is rather common in other studies on unemployment. In such studies, priorities are set to importance of length of unemployment and comparisons of short-term and long-term unemployed (16, 17). Since the aim of this paper was to evaluate associations of psychosocial health with SOC, it could be concluded that the type of study is adequate and reliable.

Table 4. **The comparison of mean SOC-13 scores in different subgroups of the unemployed by other psychosocial health elements**

Variable	Group I $\overline{x}$±SD/n	Group II $\overline{x}$±SD/n	Difference	t (p)
Self-reported health 1 – good and average 2 – poor and very poor	57.8±10.7/366	50.0±11.7/63	7.8	4.95 (p<0.001)
Smoking (after job loss) 1 – no changes or less 2 – more intensive	57.0±11.1/367	54.3±11.3/62	2.7	1.74 (sn)
Alcohol consumption (after job loss) 1 – no changes or less 2 – more intensive	57.2±11.0/399	48.1±10.9/30	9.1	4.41 (p<0.001)
Stress 1 – no stress or no different from others 2 – more often than others	58.6±10.6/289	52.4±11.2/140	6.2	5.47 (p<0.001)
Depression (by BDI) 1 – no depression 2 – depression	60.3±10.2/276	49.9±9.7/153	10.4	10.44 (p<0.001)
Shame 1 – never or sometimes 2 – often and always	59.5±10.4/252	52.4±10.9/177	7.1	6.77 (p<0.001)
Suicidal intentions 1 – no suicidal intentions 2 – suicidal intentions	58.5±10.8/327	50.4±10.3/102	8.1	6.85 (p<0.001)
Relations with family members 1 – good relations 2 – poor relations	58.4±10.8/323	51.1±10.6/106	7.3	6.12 (p<0.001)
Feeling of the loneliness 1 – no feeling of loneliness 2 – feel lonely	60.2±10.6/231	52.5±10.4/198	7.7	7.58 (p<0.001)

1 and 2 – comparative groups (descriptions with the variable names);
$\overline{x}$±SD – mean and its standard deviation; n – number of observed persons;
p – significance level comparing groups 1 and 2; difference – arithmetical difference (group 1 – group 2);
NS – not significant; BDI – Beck Depression Inventory

Table 5. **Risk of low sense of coherence among the unemployed (logistic regression analysis)**

Variables	OR	95% CI	p
Being female	2.97	1.88–4.68	p<0.001
Older age (each age group)	1.11	0.92–1.35	sn
Education (higher level of education)	0.73	0.60–0.87	p<0.001
Rural residence	0.83	0.72–0.94	p<0.01
Living without a partner	1.10	0.57–2.11	sn
Higher income	1.40	0.92–2.13	sn
Long-term unemployment	1.81	1.18–2.78	p<0.01
Regularly practiced religion	1.29	0.85–1.96	sn

OR – odds ratio; CI – confidence interval; p – significance level; NS – not significant.

As it was mentioned above, findings from previous studies suggest that strong SOC associations with other characteristics of psychosocial health exist (3, 18). Such associations were supported by our study as well. It was demonstrated that the unemployed who were more depressive, heavy alcohol drinkers, and had suicidal intentions, poorer self-rated health, felt shame and loneliness, and had problems with relatives subsequently reported worse SOC. Similar results were obtained in other surveys. The study of ex-workers of Volvo factory reported that the unemployed with strong SOC had the same psychosocial health as the reemployed ones (12). It leads to the conclusion that high SOC acts as "buffer measure" against stressful life events, including job loss.

According to Anonovsky, SOC is formed during the first few decades of life and is relatively stable; however, some variations occur in adulthood (2). We estimated that level of SOC is considerably lower among the unemployed with expressed psychosocial problems compared to ones without these problems. It is still not clear, how the event job loss of influences SOC. Since we were not able find studies, which investigated this phenomenon, some assumptions could be done based on secondary evidence from other surveys. Hanse and Engstrom conducted a survey of the former workers at the closed down plant in Sweden. The SOC-13 questionnaire was mailed to all subjects 2 years after the closure of the plant. Some of them were reemployed, and others remained unemployed. A notable difference was found comparing the re-employed and unemployed (70.78±10.32 and 62.15±12.81, respectively; $P<0.001$) (12). Similar results from other studies suggested that the unemployed had weaker SOC compare to the employed (8, 19). Results of our study showed that SOC level was considerably higher among the short-term than long-term unemployed. Moreover, a significant but weak correlation between the length of unemployment and the SOC score was established. This emphasizes that SOC level decreases with an increase in the length of unemployment. These findings fit the theory of American sociologist Ashton, who concludes that each unemployed passes through some stages. At first, a new unemployed person experiences shock after job loss. However, this stage does not last long, and shock is replaced with optimism related to occurrence of new possibilities in life. If this optimism does not materialize, person becomes depressive and pessimistic. This leads to becoming belittled and skeptic about his or her possibilities to be re-employed. Usually individuals remain in this condition if they do not find a new job. This theory gives some explanations why the long-term unemployed have a weak SOC (20).

It could be summarized that job loss reduces SOC, but the unemployed with high SOC can better manage stressful situations and remain in better level of psychosocial health. However, it should be noted that this study does not allow determining a cause-effect relationship. Therefore, longitudinal studies in this field are needed.

Conclusions

1. Level of sense of coherence of unemployed in Kaunas was low (56.6±11.2). Short-term unemployed had considerably higher level of sense of coherence compare to the long-term unemployed.

2. Being female and long-term unemployment had a significant effect on experiencing low sense of coherence; however, higher education and income increased the probability of higher sense of coherence.

3. Unemployed with negative elements of psychosocial health (depression, suicidal intentions, more intensive alcohol consumption after job loss, and poor self-reported health, feelings of loneliness and shame, and poor relations with family) had lower sense of coherence as compared with those without these elements.

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Vidinė darna ir jos sąsajos su psichosocialine sveikata (Kauno bedarbių tyrimo duomenys)

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Santrauka. Tyrimo tikslas. Įvertinti bedarbių vidinę darną ir jos sąsajas su psichosocialine sveikata.

Medžiaga ir metodai. Tyrimas atliktas 2005 m. Kauno darbo biržoje. Anoniminio anketavimo būdu apklausti 429 bedarbiai, kurie naudojosi biržos paslaugomis (atsako dažnis – 53,6 proc.). Vidinei darnai įvertinti naudota „Orientacijos į gyvenimą“ klausimyno trumpoji versija (SOC-13). Ilgalaikiais bedarbiais laikyti asmenys, kurie apklausos dieną bedarbiais buvo 12 mėn. ir ilgiau. Logistinės regresijos metodu nustatytas įvairių veiksnių poveikis vidinei darnai, kuri buvo vertinama šansų santykiu.

Rezultatai. Bedarbių vidinės darnos vidurkis buvo 56,6±11,2 (min. – 13, maks. – 91). Nustatyta, kad didesnė vidinė darna buvo tarp trumpalaikių bedarbių lyginant su ilgalaikiais, taip pat tarp vyrų, aukštesnio išsilavinimo ir geresnes materialines sąlygas turinčių asmenų. Respondentai, kurie turėjo suicidinių polinkių ir sirgo depresija, dažniau vartojo alkoholinius gėrimus, prasčiau vertino savo sveikatą, jautė gėdą ir vienišumą, nurodė prastus santykius su artimaisiais, jų vidinė darna taip pat mažesnė. Mažos vidinės darnos tikimybę didino moteriškoji lytis (ŠS=2,97) ir ilgas buvimas bedarbe (ŠS=1,81), o aukštesnis išsilavinimas (ŠS=0,73) ir didesnės pajamos (ŠS=0,83) šią riziką reikšmingai mažino.

Išvados. Kauno miesto bedarbių vidinė darna buvo maža. Bedarbių, turinčių neigiamų psichosocialinės sveikatos elementų, vidinės darnos vidurkiai buvo mažesni palyginus su šių elementų neturinčiais bedarbiais.

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