A Healthy Outlook

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Abstract

The sense of coherence—a healthy outlook—can be thought of as a measure of positive health, that is, a factor promoting resilience which enables an individual to remain healthy. Based on National Population Health Survey (NPHS) data, three health measures were analyzed in relation to sense of coherence. The sense of coherence accounted for a substantial proportion of the total variance for two of the three measures.

Theoretically, people with a healthy outlook are more able to cope successfully with trauma and stress. According to NPHS data, on average, those who reported at least one traumatic event had a lower sense of coherence than those who did not. For people who experienced trauma during childhood and young adulthood, yet had a strong sense of coherence, the impact of that trauma on their health was diminished.

Keywords: *sense of coherence, stress (psychological), health status indicators, Antonovsky, National Population Health Survey*

Traditionally, health research has been oriented toward identifying the risk factors for disease and premature death. Recently, this focus has widened to include protective and health-promoting factors, for example, the relationship between outlook on life and good health.

This approach to health research was taken by Aaron Antonovsky who studied survivors of Nazi concentration camps. He noticed that some of them were in remarkably good health and had coped relatively well with their horrific experiences. To explain this, he theorized that people with a healthy outlook on life are more able to cope successfully with trauma and stress. He defined outlook on life as the sense of coherence (SOC), the extent to which people feel that life is meaningful, manageable, and comprehensible. SOC can be thought of as a measure of *positive* health—a factor promoting resilience which enables an individual to remain healthy.[1]

There are several possible explanations of how SOC affects health. A strong SOC could have direct physiological consequences by activating the brain to send messages to other body systems which maintain a healthy balance. SOC could favour the selection of health-promoting behaviours. For example, a person with a strong SOC would be more likely to define stressors as challenges rather than problems and act accordingly, thereby reducing tension. SOC could also promote successful coping, so that the resolution of stressful situations would be emotionally gratifying and thus have positive health consequences.

Antonovsky operationalized this concept into a psychological measure or scale by means of a series of questions. Data to measure SOC have been gathered from a variety of groups, including kibbutz members, Israeli medical students, American nurses, and New Zealand pain patients.[2] The 1994-95 National Population Health Survey (NPHS), however, is the first large survey that has measured SOC (see *Measuring sense of coherence*). Consequently, research based on NPHS data is more generalizable than past endeavours (see page 9 for a description of the survey).

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Measuring sense of coherence

To measure sense of coherence (SOC), the NPHS asked the following 13 questions. The numbering corresponds to the order on the questionnaire. A respondent's SOC score was obtained by summing the scores for these questions: the higher the score, the stronger the SOC. The lowest possible total score is 0, and the highest, 78.

Comprehensibility:

2. How often in the past were you surprised by the behaviour of people whom you thought you knew well? (0 means never; 6 means always.) (scoring reversed)
5. How often do you have the feeling you are in an unfamiliar situation and don't know what to do? (0 means very often; 6 means very seldom or never.)
6. How often do you have very mixed-up feelings and ideas? (0 means very often; 6 means very seldom or never.)
7. How often do you have feelings inside that you would rather not feel? (0 means very often; 6 means very seldom or never.)
12. When something happens, do you generally overestimate or underestimate its importance or do you see things in the right proportion? (0 means you over- or underestimate importance; 6 means you see things in the right proportion.)

Manageability:

3. How often have people you counted on disappointed you? (0 means never; 6 means always.) (scoring reversed)
4. How often do you have the feeling that you're being treated unfairly? (0 means very often; 6 means very seldom or never.)
8. Many people—even those with a strong character—sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past? (0 means very seldom or never; 6 means very often.) (scoring reversed)

10. How often do you have feelings that you're not sure you can keep under control? (0 means very often; 6 means very seldom or never.)

Meaningfulness:

1. How often do you have the feeling that you don't really care about what goes on around you? (0 means very seldom or never; 6 means very often.) (scoring reversed)
9. How often do you have the feeling that there's little meaning in the things you do in your daily life? (0 means very often; 6 means very seldom or never.)
11. Until now, has your life had no clear goals or purpose, or has it had very clear goals and purpose? (0 means no clear goals or purpose; 6 means very clear goals and purpose.)
13. Is doing the things you do every day a source of great pleasure and satisfaction or a source of pain and boredom? (0 means a source of great pleasure and satisfaction; 6 means a source of pain and boredom.) (scoring reversed)

The original scale that Antonovsky devised consisted of 29 questions. The shorter NPHS version has been shown to be reliable and valid. Antonovsky reported that users of the SOC scale have initially had problems achieving valid responses to individual questions. Unless the questionnaire is administered by trained interviewers, there is a tendency for respondents to select a response option at either extreme.[2] A frequency distribution of the responses to each SOC question on the NPHS revealed that questions 1, 5, 6, 8, 9, 10 and 11 had 40% or more of the responses at one of the two extremes, while all other questions showed a fairly even scatter of responses over three or more points on the seven-point scale. The internal consistency of the scale, as measured by Chronbach's alpha, was 0.83—an adequate level for research.

Three measures of health

There is no gold standard measure of health. Consequently, three different measures were chosen for analysis in an effort to ensure a representation of the different aspects of health.

Health utility index scores: The health utility index focuses on the functional aspects of health, and includes a valuation of health in addition to a description. The descriptive component was developed by asking respondents to answer questions about eight areas of their personal health: vision, hearing, speech, mobility, emotional state, thinking and memory, dexterity, and level of pain and discomfort. The valuation component was derived from responses to another survey which asked individuals to rank preferences for various health conditions. The two components were combined to produce an overall index score for each respondent.[3] The index ranges from 0.00 to 1.00, with 1.00 representing perfect health. Approximately 76% of respondents had a score of 0.95 or more. Data were missing for 95 respondents (0.6%).

Self-perceived health: Respondents were asked, "In general, would you say your health is excellent? very good? ood? fair? poor?" These response categories were given values from 5 to 1, respectively. The majority (88%) of respondents rated their health as good or better. Data were not missing for any respondents.

Number of chronic conditions: Respondents were asked if they had any of the following chronic conditions that had been diagnosed by a health professional: food and other allergies, asthma, arthritis, back problems, high blood pressure, migraine headaches, chronic bronchitis, sinusitis, diabetes, epilepsy, heart disease, cancer, stomach and intestinal ulcers, effects of stroke, urinary incontinence, acne requiring prescription medication, Alzheimer's disease and other dementia, cataracts and glaucoma, and any other chronic condition. Respondents were counted as having a condition if it had lasted or was expected to last six months or longer. The severity of each condition was not recorded. Hence, each condition was given equal weight, though they likely differ in this respect. The majority (66%) of respondents reported one or more chronic conditions. Data were missing for 20 respondents (0.1%).

To test if outlook on life was related to health, three measures — health utility index score, level of self-perceived health, and number of chronic conditions—were analyzed in relation to SOC (see *Three measures of health)*. This analysis used data from 16,291 NPHS respondents aged 18 and over who were living in households.
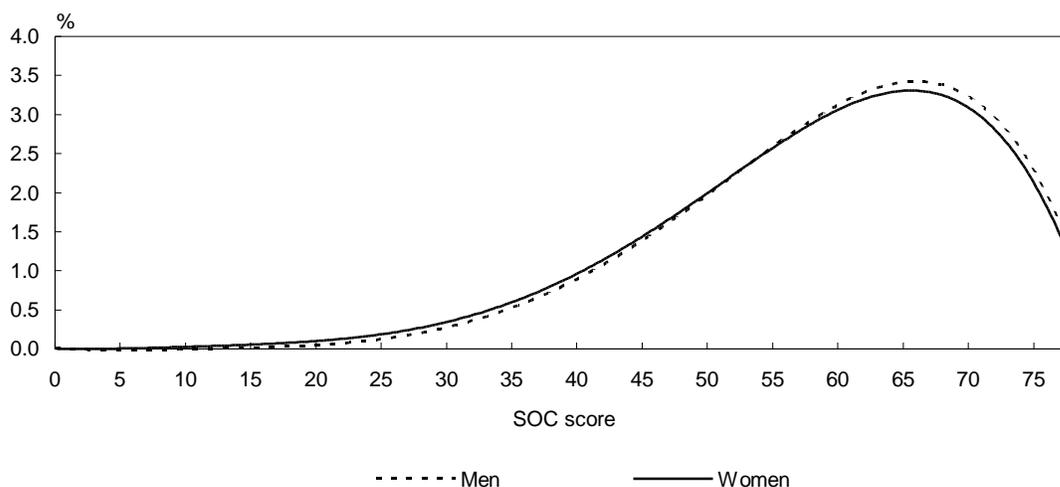
Of sound mind and body

The potential range of the SOC scale derived from the NPHS is from 0 to 78. A higher score indicates a stronger sense of coherence. In the 1994-95 survey, scores ranged from 4 to 78, and the distribution was negatively skewed—the bulk of respondents had scores at the upper end of the range (Chart 1). As well, the distributions for men and women were not remarkably different.

SOC was positively correlated with both health utility index scores and self-perceived health, with correlation coefficients of 0.31 and 0.21, respectively (*Appendix*). (Correlation coefficients range from 1.0, a perfectly positive association, to -1.0, a perfectly negative association. A value of 0.0 indicates no association whatsoever.) The negative correlation between the number of chronic conditions and SOC (-0.10) indicates that people who had a high SOC tended to report fewer chronic conditions, and those with a low SOC, more chronic conditions. In sum, individuals with a high sense of coherence, tended to be in better health.

The strength of these correlations is indicated by the absolute value of the coefficients. SOC has the strongest association with health utility index scores, followed by self-perceived health, then chronic conditions. These results, though weak, are consistent with past research.[2]

The magnitude of the correlation coefficient is affected by the actual range of the variables.[4] A comparison of the relative strengths of these associations must take into account the measurement properties of the indicators being compared. The low degree of relationship between SOC and number of chronic conditions, compared with the relationship between SOC and health utility index scores, is partly due to the measurement properties of the variables. Furthermore, information on the severity of the chronic condition was not recorded.

Unique contribution of sense of coherence

In addition to sense of coherence, a broad range of factors influences health. To estimate the *unique* contribution of SOC to health, these other variables must be considered. Three multiple linear regression models were fitted to the data (see *Multiple linear regression)*. The three health measures (health utility index scores, self-perceived health scores, and number of chronic conditions) were regressed on several health -related factors

Chart 1

Smoothed distribution[†] of SOC scores by sex, population aged 18 and over, Canada, 1994-95

Multiple linear regression

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Traumatic and recent life events

To measure **traumatic events** during childhood or young adulthood (before leaving home) the following "yes/no" questions were included in the NPHS. Respondents with one or more "yes" responses were considered to have experienced this kind of stress (49%). Data were missing for 700 respondents (4.3%).

1. Did you spend two weeks or more in the hospital?
2. Did your parents get a divorce?
3. Did your father or mother not have a job for a long time when they wanted to be working?
4. Did something happen that scared you so much you thought about it for years after?
5. Were you sent away from home because you did something wrong?
6. Did either of you parents drink or use drugs so often that it caused problems for the family?
7. Were you ever physically abused by someone close to you?

To measure **recent life events**, the NPHS asked respondents the following "yes/no" questions about events that happened to them or anyone close to them, such as a spouse, child, or close friend, in the past 12 months. Having experienced one or more such events meant that a respondent would be considered to have endured this kind of stress (34%). Data were missing for 697 respondents (4.3%).
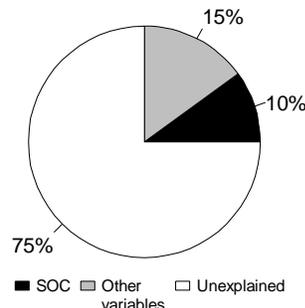
1. Was any one of you beaten up or physically attacked?
2. Did you or someone in your family, have an unwanted pregnancy?
3. Did you or someone in your family have an abortion or miscarriage?
4. Did you or someone in your family have a major financial crisis?
5. Did you or someone in your family fail school or a training program?
6. Did you (or your partner) experience a change of job for a worse one?
7. Were you (or your partner) demoted at work or did you/either of you take a cut in pay?
8. Now, just you personally, did you go on welfare?

For each health measure, the majority of variance was left unexplained. Nonetheless, SOC accounted for a substantial proportion of the total variance in two of the three models. And in the case of health utility index scores, SOC was the most important contributor among the variables that were assessed. SOC alone explained 10% of the total variance in health utility index scores. When self-perceived health was analyzed, age was the most important variable, accounting for 8% of the total variance, followed by SOC (4%). For the number of chronic conditions, the explanatory power of SOC was much lower, accounting for only 1% of the total variance (Chart 2). Therefore, after controlling for the contribution of the other variables in the model, SOC explained a substantial amount of the variance in health as measured by health utility index scores and self-perceived health.

Chart 2

Proportion of explained variance for three health measures, Canada, 1994-95

Health utility index scores

15%
10%
75%

■ SOC ▨ Other variables ☐ Unexplained

Self-perceived health

16%
4%
80%

■ SOC ▨ Other variables ☐ Unexplained

Number of chronic conditions

15%
1%
84%

■ SOC ▨ Other variables ☐ Unexplained
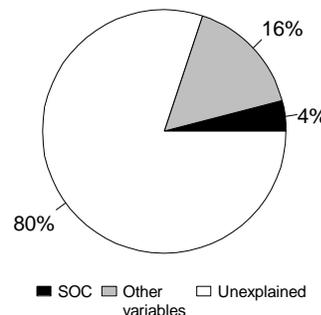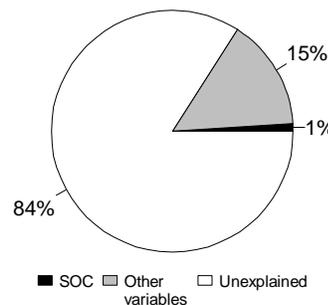
Source: *National Population Health Survey, 1994-95*

Stress, outlook on life and Health Statistics Division

The interaction variable between recent life events and SOC was not significant in two of the three regression analyses. This may be partly due to the nature of the recent life events variable, which included events that occurred to those "close" to the respondents in addition to the respondents themselves. In contrast, the regression analyses indicate that the interaction variable between SOC and trauma during childhood or young adulthood was significant when explaining the variance in the three health measures. To probe this relationship further,

mean SOC scores were calculated for those who experienced traumatic events and those who did not. These means were significantly different. On average, people who reported at least one traumatic event had lower SOC scores than those who did not experience trauma: 56 and 62 points, respectively.

These two groups were then divided into quintiles by SOC score. For each sub-group, mean health utility index scores were calculated. Across all the quintiles, health utility index scores were lower for those who had experienced trauma than for those who had not, but these differences were statistically significant only for the two lowest quintiles of SOC. Moreover, for both groups, as SOC increased, so did health (Chart 3). From the lowest SOC quintile to the highest, mean health utility index scores rose from 0.80 to 0.91 (on a scale from 0 to 1) among those having experienced traumatic events. The increase was from 0.84 to 0.92 among those not reporting such events. In other words, for people who experienced trauma during childhood and young adulthood, yet had a strong sense of coherence, the impact of the trauma on their health was diminished. This finding could not be replicated when self-perceived health was used as the health measure.

The results of this analysis lend support to Antonovsky's hypothesis. But because of the cross-sectional nature of the data, it is not possible to ascertain the causal link. Are people with a high sense of coherence better able to deal with traumatic events and thus maintain better overall health, or do people in better health tend to perceive the world as more manageable, meaningful, and comprehensible? Are traumatic events more damaging to health when SOC is low or does poor health influence SOC, especially when traumatic events are experienced? Longitudinal data from future cycles of the NPHS will provide insight into some of these relationships.

Chart 3

Health utility index score, by SOC quintile and exposure to traumatic events, Canada, 1994-95
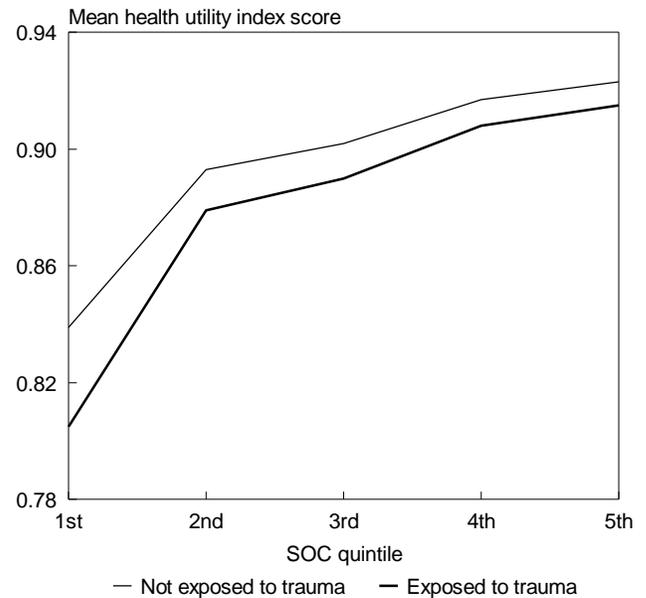
Source: *National Population Health Survey, 1994-95*
Note: *The standard errors for the mean health utility index scores range from 0.002 to 0.005 for those without trauma and from 0.003 to 0.004 for those with trauma. At p=0.05, the confidence intervals among those with and without trauma do not overlap in the first and the second quintiles.*

References

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Appendix

Pearson correlation coefficients between selected socio-demographic factors, stress and sense of coherence

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Female (1)		.05	.08	.02	-.04	-.04	.01	.03	.01	--	-.04	-.05	-.07	.16	.01	--	-.01	.19	.04	--	-.04
Age (2)			.04	.08	-.07	-.05	.29	-.06	-.15	-.08	-.03	.14	-.43	.31	.10	-.03	-.08	.53	-.10	-.19	.22
Household income group																					
Lowest (3)				...	...	...	.18	-.02	-.02	-.07	-.11	-.23	.08	.22	-.08	.02	.09	.23	.05	.13	-.12
Lower-middle (4)					...	...	.11	.02	.00	-.02	-.13	.00	-.01	.01	-.03	.01	.01	.12	-.02	-.03	.01
Upper-middle (5)						...	-.12	.02	.02	.07	.03	.11	-.04	-.11	.06	-.02	-.05	-.17	--	-.03	.04
Highest (6)							-.16	-.03	.01	.01	.23	.10	-.03	-.11	.04	-.01	-.04	-.17	-.01	-.04	.05
Educational attainment																					
Less than secondary graduation (7)								...	...	...	...	-.02	-.06	.10	.03	-.03	-.02	.30	--	-.04	--
Secondary graduation (8)									...	...	...	.03	-.01	-.03	--	--	--	.01	--	--	-.01
Some postsecondary (9)										...	...	-.09	.12	-.01	--	-.02	.01	-.08	.03	.05	-.06
College/trade graduation (10)											...	.04	-.03	-.02	-.01	.03	--	-.11	.01	.01	.02
University graduation (11)												.06	-.03	-.06	-.02	.02	.01	-.14	-.06	-.03	.07
Marital Status																					
Married (12)[†]													...	...	.05	--	-.04	-.06	-.03	-.06	.17
Never married (13)														...	-.08	.03	.06	-.11	.03	.06	-.17
Previously married (14)[‡]															.02	-.03	-.01	.22	.01	.01	-.03
Race																					
European (15)																...	...	--	.05	.02	.07
Asian (16)																	...	.01	-.07	.05	-.04
Non-European/non-Asian (17)																		-.01	-.02	.06	-.05
Not working last 12 months (18)																			-.01	-.08	.04
At least one traumatic event (19)																				.21	-.23
At least one recent life event (20)																					-.26
SOC (21)																					
Health utility index	-.07	-.30	-.13	-.04	.07	.09	-.18	.04	.04	.06	.08	.06	.06	-.16	-.01	--	.01	-.31	-.13	-.09	.31
Self-perceived health	-.04	-.28	-.14	-.09	.09	.13	-.23	.01	.05	.07	.13	.03	.07	-.12	.02	-.02	-.01	-.30	-.10	-.06	.21
Number of chronic conditions	.11	.30	.08	.04	-.05	-.05	.11	-.05	-.01	-.02	-.05	-.03	-.11	.17	.07	-.05	-.05	.27	.13	.06	-.10

Source: *National Population Health Survey, 1994-95*

Note: *The correlations are based on pairwise deletions. The sample size varies from 14,736 to 16,291.*

[†] *Includes common-law and living with partner.*

[‡] *Includes widowed, divorced and separated.*

Effects of socio-demographic factors, stress, and sense of coherence on three measures of health

Variables	Health utility index				Self-perceived health				Number of chronic conditions			
	b	se	beta	R^2 change	b	se	beta	R^2 change	b	se	beta	R^2 change
Female	n.s.	--	--	--	.05***	.015	.02	--	.17****	.022	.06	.01
Age	-.002****	.00007	-.25	.08	-.01****	.001	-.23	.08	.02****	.001	.26	.09
Household income group				.02				.03				--
Lowest†	...	...	...		...	...	...		...	...	...	
Lower-middle	.011****	.003	.04		n.s.	--	--		n.s.	--	--	
Upper-middle	.011****	.003	.04		.15****	.023	.07		n.s.	--	--	
Highest	.018****	.003	.05		.26****	.028	.10		n.s.	--	--	
Educational attainment				.01				.02				.01
Less than secondary graduation†	...	...	...		...	...	...		...	...	...	
Secondary graduation	.015****	.003	.04		.16****	.024	.06		-.07*	.035	-.02	
Some postsecondary	.008**	.003	.03		.18****	.022	.08		.12****	.031	.04	
College/trade graduation	.009**	.003	.03		.22****	.024	.09		.09**	.034	.02	
University graduation	.012***	.003	.03		.32****	.026	.12		n.s.	--	--	
Marital status				--				--				--
Married†	...	...	...		...	...	...		...	...	...	
Never married	n.s.	--	--		n.s.	--	--		n.s.	--	--	
Previously married	n.s.	--	--		.07**	.024	.02		.20****	.033	.05	
Race				--				--				.01
European†	...	...	...		...	...	...		...	...	...	
Asian	n.s.	--	--		-.23****	.047	-.04		-.25***	.068	-.03	
Non-European/Non-Asian	.011**	.004	.02		n.s.	--	--		-.15***	.044	-.03	
Not working last 12 months	-.043****	.003	-.15	.02	-.30****	.021	-.14	.01	.40****	.029	.13	.01
At least one traumatic event	-.08****	.01	-.33	.01	-.36****	.076	-.18	.01	.80****	.11	.28	.01
At least one recent life event	-.013****	.002	-.05	.01	-.08****	.017	-.04	.01	n.s.	--	--	.01
SOC	.003****	.0001	.28	.10	.02****	.001	.21	.04	-.01****	.001	-.09	.01
Traumatic event * SOC	.001****	.0002	.25	--	.004**	.001	.12	--	-.008****	.002	-.17	--
Recent life event * SOC	n.s.	--	--	--	n.s.	--	--	--	.003****	.0004	.06	--
Intercept	.81				2.21				.26			
Total R^2				.25				.20				.16

Source: *National Population Health Survey, 1994-95*

Note: *The variables were entered sequentially in blocks denoted by the bold print. No degrees of freedom were lost when the entire block was not significant, as is the case for sex in the health utility index analysis and income in the analysis by the number of chronic conditions. The sample weights were adjusted so thay they average to 1.0. Total sample size is 16,291, but respondents with a missing value for one or more variables were excluded from the analysis (listwise deletion).*

† *Indicates reference category.*

n.s. *Indicates not significant.*

* *$p < .05$*

** *$p < .01$*

*** *$p < .001$*

**** *$p < .0001$*

Health utility index: $F = 320.7$; $df = 15$, $14\ 563$; $p = .0001$
Self-perceived health: $F = 207.6$; $df = 18$, $14\ 573$; $p = .0001$
Number of chronic conditions: $F = 187.1$; $df = 15$, $14\ 566$; $p = .0001$.