

SÁRA JEGES & KÁROLY VARGA*

UNRAVELLING THE MYSTERY OF THE SENSE OF COHERENCE**

(Received: 21 August 2006; accepted: 2 October 2006)

This study reports the validation of Antonovsky's 29-item 'Sense of Coherence' (SOC) scale through health criteria with the help of a representative survey of 1,400 people. The dependent variables were the score data of self-assessment of health, vegetative lability and chronic diseases, which were combined into the index of the Ease/Dis-Ease Continuum (EDEC). SOC significantly predicts place on the EDEC scale. We also found SOC predicting, in some cases, with a strength surpassing that of health criteria, the criterion data of well-being indices (cognitive satisfaction, affective happiness). Thirdly, the attitudinal and value system contents of SOC were explored through convergent validation, finding among them responsibility-taking – an element of the entrepreneurial attitude – and the integrative Maitreyan value, the proactive Promethean value and the Christian value, which fosters mutual social support. We sketch a further research task within the topic of Sense of Coherence as a group property: an examination and a project for the development of the SOC level of the Hungarian national community. For this purpose we have validated the 6-item version of the SOC scale.

Keywords: chronic conditions, Ease/Dis-Ease Continuum, entrepreneurial attitude, health, quality of life, Sense of Coherence, social support, (subjective) well-being, value system, vegetative lability

Die Enthüllung des Mysteriums vom Kohärenzgefühl: Die Studie berichtet über die Validierung des mit Hilfe der 29 Items der Antonovsky-Skala gemessenen Kohärenzgefühls (Sense of Coherence, SOC) mit Hilfe von Gesundheitskriterien. Grundlage hierfür war die Testung der Ergebnisse der repräsentativen Erfassung von 1400 Personen. Abhängige Variablen:

* Corresponding author: Károly Varga, Pázmány Péter Catholic University, Bakáts u. 1–3, H-1093 Budapest, Hungary; h9184var@ella.hu.

** We thank Tamás Tahin MD, CSc, medical sociologist, for his help in selecting the Baranya county sample and setting at our disposal the scale used for chronic diseases.

die Selbsteinschätzung des Gesundheitszustandes, vegetative Labilität und die Daten der Skala für chronische Krankheiten, aus denen wir den Krankheits-Gesundheits-Kontinuum-Index (Ease/Dis-Ease Continuum [EDEC]-Index) abgeleitet haben. Unseren Ergebnissen zufolge prädiziert das SOC signifikant den auf der EDEC-Skala belegten Rang. SOC ist vergleichbar stark, in einigen Fällen sogar stärker als in Bezug auf Gesundheitskriterien, so in Bezug auf die Daten des Well-Being-Indexes (kognitive Zufriedenheit, affektives Wohlbefinden). Als drittes Thema explorierten wir den Gehalt des SOC bezüglich Einstellungen und Wertesystem (konvergente Validierung). Hierbei fanden wir die Verantwortungsbereitschaft, in der die Einstellung gegenüber Herausforderungen zum Ausdruck kommt, bzw. integrative Maitreyaan-Werte, proaktive Promethean-Werte und sich für gegenseitige soziale Unterstützung (*social support*) einsetzende Christian-Werte. Aufgabe zukünftiger Forschungen wird es sein, im Rahmen des Themas „SOC als Gruppeneigenschaft“ das Niveau des Kohärenzgefühls der ungarischen Gesellschaft zu untersuchen bzw. ein Konzept zu dessen Förderung zu erstellen. Hierfür wurde die aus sechs Items bestehende SOC-Skala validiert.

Schlüsselbegriffe: chronischer Zustand, „Ease/Dis-Ease Continuum“, unternehmerische Einstellung, Gesundheit, „social support“, (subjektive) Glückseligkeit, vegetative Labilität, Wertesystem

1. The third decade of the salutogenic paradigm: Results and problems left open

Besides positing his own salutogenic paradigm as an antithesis to the pathogenic approach in his *Unraveling the Mystery of Health*, Aaron ANTONOVSKY (1987) distinguishes this also, along a finely tuned scale, from the trend known variously as ‘behavioural health’, ‘behavioural medicine’ and ‘health psychology’. To clarify the distinction, he uses an avowedly ‘powerful’ metaphor taken from the ‘moderately anti-medical establishment literature’¹ (used in that bitter criticism to scorn modern medicine) by carrying further the ‘bias of the downstream focus’ identified in the *river metaphor*. By transforming the river metaphor, Antonovsky hopes to bring home to the reader both the revolutionary novelty of the way the question is posed by salutogenesis, and the answer to be given to it in the construct offered in the *Sense of Coherence*. The visualisation cited here features a *raging river* full of people drowning:

Contemporary Western medicine is likened to a well-organized, heroic, and technologically sophisticated effort to pull drowning people out of the raging river. Devotedly engaged in this task, often quite well rewarded, the establishment members never raise their

¹ On this topic, i.e. the distance kept between Antonovsky and ‘Schulmedizin’ physiotherapist Barbara Schubert, inspired by Brucks, writes: ‘Antonovsky selbst gelangte bei der Frage, wer sein Konzept aufnehmen und praktisch umsetzen würde, zu einer skeptischen Einschätzung hinsichtlich der Medizin, während er der Psychologie, der Pädagogik und auch der Krankenpflege mehr Interesse zutraute’ (SCHUBERT 2006, 142; cf. ANTONOVSKY 1993; BAHRS et al. 2003).

eyes or minds to inquire up streams, around the bend in the river, about who or what is pushing all these people in. (ANTONOVSKY 1987, 89)

Inspired by this metaphor, the interpretation adopted by *behavioural medicine* traces ‘falling into the river’ to a harmful way of living, with certain of its variants remembering to mention social and cultural conditions at work behind that lifestyle. ANTONOVSKY, however, proceeds to adopt a scornful tone, intent on revealing the incompleteness of the approach, which he thinks is due to the fact that ‘this school of thought tends to assume that people are jumping into the river of their own volition and refusing to learn to swim’ (1987, 90). And when the school in question tried to swallow up his trend (offering him to expound his views in their collection of essays), ANTONOVSKY, in his contribution written for that volume (1984), expanded the metaphor in directions that revealed a set of new points of view:

In an important sense I would dissociate myself from this school. To continue the metaphor, my fundamental philosophical assumption is that the river is the stream of life. None walks the shore safely. Moreover, it is clear to me that much of the river is polluted, literally and figuratively. There are forks in the river that lead to gentle streams or to dangerous rapids and whirlpools. My work has been devoted to confronting the question: ‘wherever one is in the stream – whose nature is determined by historical, social-cultural, and physical environmental conditions – what shapes one’s ability to swim well?’ I did not inquire into the causes of poverty, war, unemployment, or pollution, never dreaming that anyone would understand my work as implying that these were not fundamental to understanding movement along the health ease/dis-ease continuum. I did commit myself to the argument that how well one swims is determined in good measure, though not solely, by one’s SOC. Given the same objective characteristics of the river, people will manage more or less well. (ANTONOVSKY 1987, 90–91)

This refined variant of the river metaphor offers us a holistic intuitive experience of the abstract content of the new conception.² In this paper we follow Antonovsky to the extent that we make an attempt – which is itself part of the reception³ of the sa-

² This is not the first time for Antonovsky to be attracted by a metaphor: before using the river metaphor he once resorted to the image of the tightrope walker to convey to readers ‘the flavour of the salutogenic images of life’. An elementary variant of the metaphor is cited from GALDSTON (1954) in his book *Health, Stress and Coping* (1979): ‘Dynamic homeostasis can be likened to a man walking a tightrope from one end to the other, balancing himself even while he changes clothes and takes on and discards a variety of other objects’ (ANTONOVSKY 1987, 89). An improved version of the metaphor appears in a paper written in-between, ‘We begin to lose our balance and recover it; or slip, catch the rope, and return to a standing position; or fall into a net and again regain the rope; or fall, hurt ourselves acutely or are damaged chronically; or we are destroyed. Some complete the course, with ups and downs, but successfully – and what a glorious, exhilarating experience it has been, whatever sadness that it has ended’ (ANTONOVSKY 1985, 275). In an attempt to give a glimpse of his conception in a single comprehensive image he chooses to resort to the ‘more powerful metaphor’ which we mentioned above.

³ To further this process of reception, the National Institute for the Promotion of Health, as the establishment charged with the application of the Population Health Promotion model introduced by the ‘Ottawa Process’ launched an applied research project called ‘Salautogenesis: a New Paradigm in the Hungarian Health Care System’, headed by Károly Varga, DSc, which was registered in the original plans as a follow-up on ‘Value system, quality of life, health’, OTKA (National Foundation of Scientific Re-

lutogenic paradigm by the Hungarian health care system – to introduce this new approach and practice in a convincing fashion, even hoping that it may impart new impulses which may contribute to the recovery of the rather languishing Hungarian health care system. But, in addition to a life-like presentation of the paradigm, we also have further aims. The first of these is *to validate* the psychological construct and the testing procedures of salutogenesis for the domestic population *in terms of health criteria*. Following this, we undertake to make *new discoveries* in the domain of the prospects opened up by the breakthrough of salutogenesis. While the first of these is inevitable when applying to local circumstances a construct elaborated for international use,⁴ the latter undertaking is recommended to the attention of the subsequent generation of researchers by ANTONOVSKY himself:

Where such research (the empirical testing of the salutogenic idea) will bring the model *a decade hence* cannot be predicted. If I have been motivated by one purpose to write this volume, it is *to spark ideas in the minds of those colleagues who share with me the enhancement of the mystery of health*.
(1987, XVII, *italics added*)

He makes the following claim about this future, at once hopeful and sceptical: ‘I would, of course, be *flattered* should other investigators report data linking the Sense of Coherence to other (than health) aspects of well-being, but will not be too *disappointed* by limited results’ (ANTONOVSKY 1987, 182, *italics added*).

It has been two decades rather than one since these words were put into a word processor and there still remains a host of problems to be clarified, not to speak of opportunities for theoretically and empirically rearranging them with a view to arriving at results which are more profound and of more comprehensive validity. We find it expedient to take as our starting point the themes bequeathed to later generations by Antonovsky himself. In two of these – discussed by Antonovsky under the titles ‘Health and Well-Being’ and ‘The Sense of Coherence as a Group Property’ – we would like to advance one step further. Under the first heading he tries to come to grips with the following problem:

search) basic research project T 046957, being carried out at the University of Pécs. This latter project is headed by Sára Jeges, CSc, senior scientific associate of the Faculty of Medicine at the University of Pécs and head of the Department of Biostatistics and Health Informatics of the Faculty of Health Sciences at the University of Pécs. Other participants in the project are Károly Varga, DSc and Tamás Tahin CSc as well as young teachers and researchers. The chief project, now running at Pécs, is itself a follow-up on earlier research from two directions: project T 032508, also headed by Sára Jeges, ‘Socio-Demographic and Psychosocial Factors in the Prediction of Morbidity and Mortality’, on the one hand, and a *value sociological* research project which began in the 1960s at the Sociological Research Institute of the Hungarian Academy of Sciences, with its last phase carried out at the Sociological Institute of Pázmány Péter Catholic University as OTKA project T 030564 (1999–2001) called ‘Reliable/Valid Diagnostics and Management Methods for Conflicts Originating from Value Systems’. The results of this *Lehrprojekt*, guided by Károly Varga, were published in the monograph on value sociology issued on the *decennial* of the foundation of the department (VARGA 2003).

⁴ Studies on the salutogenic paradigm have previously been undertaken in Hungary by Mária KOPP and Árpád SKRABSKI (1992; also SKRABSKI et al. 2004), Katalin FELVINCZI (2002), and Attila OLÁH (2005).

If the SOC is indeed related to health, should it not then reasonably be expected to be related to a variety of aspects of well-being? If successful coping with life stressors has positive consequences for health, should it not also have positive consequences for satisfaction, happiness, morale, and positive affect? Should we not also expect positive consequences of a strong SOC for task performance? ... Should we stretch the idea of “task performance” beyond instrumental matters and include the ability to realize one’s potential, to communicate well with others, to tolerate frustration and bear with pain, to be open to new experience, and so on, and so forth? (ANTONOVSKY 1987, 180)

In the light of our empirical findings we can be his most willing partners, having found that his SOC scale validated for this area explains a greater percentage of the variance of certain well-being indices than that of health indices in general. With the other topic offered for future research, Antonovsky tries to entrench his theoretical system in the tradition of Durkheimian sociology, while we wish to use the same for tracing out the polygon of the social use of our project.

The problem is at its most difficult when we come to talk of a *Zeitgeist*, a *Weltanschauung*, a climate, an ambience. ... Can a collectivity, as such, be characterized as having a common way of seeing the world? The importance of the question becomes clear when we consider that if the answer is positive, we can reasonably hypothesize that this way of seeing the world becomes an independent variable in shaping the SOC level of the members of the collectivity. (ANTONOVSKY 1987, 170)

With his following clarifying effort we arrive at the topic which interests us the most:

I feel fairly confident that it does make sense to speak of the group SOC as an emergent group property when the referent is to the family, small local community, work or friendship group, or the like – that is, a primary group. I become less and less comfortable about whether the concept is applicable to a large-scale complex, diversified collectivity: the medical profession, the employees of multinational Phillips, the working class, or *Spanish society*. (ANTONOVSKY 1987, 175, *italics added*)

From the SOC construct understood as a group property and used in this function as an independent variable we hope to gain insight into the special and lamentable *state of health* of the Hungarian population, and then, following the same logic, into the extension of the sphere of operation of SOC from the subject of health to that of *well-being* and even of (national) *achievement* and *self-realisation*. With that vantage point reached, we wish to elaborate a few hypothetical bearings for a Utopia-free strategy for our country, a country which has recently joined the European Union.⁵

Of the two research topics bequeathed by Antonovsky, we can check the hypothesis of a further reference toward well-being predictorship against a pool of solid survey data, while the other one, ‘the SOC as a group property, stretched until the horizon of the national community’ is treated merely conjecturally (and is therefore included in the Discussion section rather than in the Results).

⁵ VARGA 2005a, 2005b, and 2006.

2. Method

The population targeted by the project is made up of men and women between 20 and 75 years of age, with different educational and professional/vocational backgrounds, residing in various localities of Baranya, a county situated west of the River Danube in the south of Hungary. The sample represents a variety of settlement types in terms of the major demographic and social criteria, such as a major town (by Hungarian standards), namely Pécs, small towns in Baranya county (Koml6, Mohács, Sikl6s), administrative centres and their associated communities. In the Mohács and Sikl6s regions we find communities with different social and economic conditions. Differences are much more marked between communities associated with administrative centres rather than between these central communities themselves. Most of the associated communities in the Sikl6s region are the most underdeveloped villages of the Ormánság, with a low, ethnically mixed (Hungarian and Romany) population. By contrast, the associated communities of the Mohács region have traditionally been less underdeveloped villages. The population is ethnically mixed, but here the mixture is primarily between Hungarian and German inhabitants, Mohács itself being characterised by a mixture of Hungarian, German and southern Slavic cultures. Pécs is the most heterogeneous in all respects, with segregation being rather marked. The different parts of the town can be clearly marked off on a scale ranging from areas inhabited by the elite to areas inhabited by the multiply disadvantaged. Our analyses have shown that the above sequence of communities is at once a kind of hierarchy between settlements (JEGES 1997; JEGES et al. 1996, 1997; TAHIN et al. 1993, 2000a, 2000b).

The sample consisted of 1,400 persons, with 32 questionnaires impossible to evaluate (with reasons for rejection showing no systematicity). 47.8% of the respondents were male. In terms of settlement type the sample comprises 43.3% inhabitants of Pécs, 27.8% inhabitants of small towns and 28.9% inhabitants of villages. Distribution in terms of age is as follows: 28.1% below 30, 54.6% between 30–55, and 17.3% above 55 years of age. As far as level of education is concerned, 7.2% of the respondents have at most the usual 8 years of primary school, 27.9% some kind of vocational secondary or primary school (with no GCE levels), 46.3% have GCE levels, while 18.6% have some kind of qualification acquired in some kind of higher education institution.

The research was conducted through questionnaires filled out with the help of interviewers who were students at the Health Science Faculty of the University of Pécs, whom we had instructed in the techniques of interviewing in the course of their studies. Selected according to the multi-stage, layered stratified random sampling technique, the interviewers called on interviewees in their homes. The interviews lasted an hour on average.

In accordance with the research aims, the questionnaire consisted, on the one hand, of the Sense of Coherence Questionnaire, which operationalised the SOC construct, and, on the other, of the battery of criteria elaborated for its validation in the Hungarian field. Let us first take a look at the SOC construct, whose theoretical core is

given by its definition, a result of successive improvements, while its facet structure is provided by the mapping sentence for questionnaire design. The first,

[t]he 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; (3) these demands are challenges, worthy of investment and engagement. (ANTONOVSKY 1987, 19)

The facet design itself methodically unfolds the elements featured in the definition, since, when the theory condensed in the definition states that what is in play is the global orientation of the person as a whole, a pervasive, enduring and dynamic feeling, this implies the requirement that the mapping sentence should comprise as many facets as possible. Let us take just two examples from the five facets: when the definition mentions an internal and external environment, it prescribes that the questionnaire should refer not only to external stimuli as stressors but also to internal (i.e. affective) stimuli, equally as stressors, because the strength of SOC has to be measured in terms of a capacity for managing affective tension. The most important facet, however, is the three components themselves. Of the 29 questions 11 measure the interviewee's Sense of Comprehensibility, 10 his/her Sense of Manageability and 8 his/her Sense of Meaningfulness. Some of the psychometric properties of the SOC-29 scale taken with our questionnaire are shown in *Table 1*.

Table 1
Normative data from the survey using the Sense of Coherence Questionnaire

	<i>Sense of Coherence</i>	<i>Comprehensibility</i>	<i>Manageability</i>	<i>Meaningfulness</i>
<i>Mean</i>	133.37	47.95	44.70	40.72
<i>N</i>	1368	1368	1368	1368
<i>Std. Deviation</i>	21.77	9.63	7.54	7.706
<i>Minimum</i>	47	14	19	9
<i>Maximum</i>	186	73	62	56
<i>Range</i>	139	59	43	47
<i>Cronbach's Alpha</i>	.902	.774	.766	.812

Comparing these normative data with those in the original Israeli national sample (ANTONOVSKY 1987) we find that we do not lag behind in terms of the methodology of measurement, that is, of their Cronbach's Alpha which indicates the coherence of the test (ours: .902; theirs: .837).

Turning now from the SOC used as an independent variable in our regression models to the dependent variables, our battery contains instruments which measure in four directions.

1. Four indices were used for judging of health:
 - a) the four-grade scale for self-assessment of health;
 - b) a 25-item list of Chronic Conditions (TAHIN et al. 1993);
 - c) the HENNENHOFER–HEIL (1975) instrument for the measurement of vegetative lability (SMITH 2002; SPIELBERGER & RICKMAN 1990);
 - d) we have also devised a complex health index for the multi-facet characterisation of general state of health, that is, the individual's place on the EDEC (Ease/Dis-Ease Continuum).
2. To capture well-being, we took over only the questions which concern cognitive satisfaction and affective happiness from the WARR et al. (1979) scale.
3. We chose the SCANLAN–FLEXMAN test (1982) for the measurement of an entrepreneurial attitude.
4. An abridged version of the 'ways to live' questionnaire elaborated by MORRIS (1956).

Our methodology followed the concurrent validity design applied, among others, by Antonovsky himself.⁶ We linked to our data a variety of multiple linear and non-linear (logistic regressional) models (SPSS 1997), which registered connections between variables and groups of variables with the methods of mathematical statistics, which have been taken down 'concurrently' (concomitantly, that is, at the same time) for the purpose of validating the SOC. In our final models, dependent variables were the data on state of health, well-being and other prosocial and proactive attitudes and values, while independent variables (predictors) were the data on Sense of Coherence and its components. Of the set of eligible concurrent variables we measured *gender, age and level of education* (in some cases, and with limited usefulness, *income*) emerged as especially marked control variables with a 'distorting' effect on connections emerging from the criterion validation of SOC, so we decided to include these contaminating factors invariably in all subsequent models. To justify this decision, let us take a look at how they affect indices of health.

⁶ At one point of his validation procedure ANTONOVSKY puts in an *apology*: 'although it is of course true that the stringent requirement of a criterion of validity had not been met. (Some, then, may prefer to call this a test of concurrent validity.) The data from the same study also allow test of convergent and discriminant validity' (1987, 83). Formulations clearly consonant with this apology can be found in the professional literature: 'Concurrent validity is a substitute for predictive validity – a *kind of poor man's predictive validity* – where the criterion is still a real life behavior, but you already have access to it' (MUELLER 2002; cf. ANTONOVSKY 1992, 4). What we find important in section 3.3 of our Results, with our exploration of the attitude and value content of SOC, is identical with what this author stresses in connection with convergent validity: 'Convergent validity, to my mind, is more about understanding the meaning of scores; clearly a construct validation undertaking. Yes, we may correlate them with scores from other constructs, but not for the purpose of predicting, and the focus is on the *meaning of the test being validated*, not on the "other" measure. (And I refuse to call these "other" measures criteria, in this model.)' (MUELLER 2002, *italics added*).

The three control variables explain the variance of the *self-assessment of health* in 13.4% (with gender exerting no significant effect as opposed, of course, to age, which had a significant pulling-down effect [Beta = .353, $p < .001$], but even educational level had a significant improving effect [Beta = $-.079$, $p = .002$]). All three control variables have a significant effect on the index of *vegetative lability*, understood as part of a 11.9% total variance explained. It is noteworthy that the women interviewed voiced significantly more lability complaints than men (Beta = .382, $p < .001$). As for the frequency of *Chronic diseases*, the variance explained by the control variables went up to 19.3%, with age acting as the strongest influencing factor (Beta = .382, $p < .001$). As for the effect of the control variables on the *EDEC* index constructed from the linear combination of these health variables, the variance explained is 18.4%, with all three control variables figuring as rather strongly significant ($p < .001$).

Let us now turn to the topic of *well-being*: we tuned in *the family's per capita income* as a control, in addition to the usual three control variables, with a view to purifying the resulting regression data gained through the above-mentioned Satisfaction/Happiness scale.

It is interesting, at this point, to set against each other the indices of cognitive satisfaction and of affective happiness. In this connection, as far as calculative, cognitive satisfaction is concerned, material well-being is as strong as the variable of age (that is, to the same extent as the younger are more satisfied with life than the elderly [Beta = .145, $p < .001$], *the more well-to-do are more satisfied than the needy* [Beta = $-.147$, $p < .001$]) while as far as affective happiness is concerned, the variable of income level has no significant link with happiness (a contrast we had known from our previous survey, VARGA 2003, 317). In other words, the hackneyed wisdom, according to which 'Money does not make you happy' is borne out once again. Gender has the same inclination with respect both to satisfaction (Beta = .081, $p = .003$), and to happiness (Beta = .051, $p = .060$) or, if we may put it with some irony, *men tend to be a bit more satisfied and women tend to be a bit more unhappy*.

3. Results: SOC predicts health as well as other values and prosocial habits

The Results section is divided into three subsections. In the first section we validate the salutogenic construct and the SOC-29 scale for the Hungarian population with the help of the system of criteria of state of health. We also make an attempt to create an SOC index with fewer items than 29 for the measurement of SOC in such a way that it should predict the domestic health indices as strongly as the original SOC-29. In the second part we select the dependent variables from the domain of well-being and test the predictive strength of SOC on them. In the third, we go even beyond the range of the subject of well-being and enter the largely unexplored domain ('Hic sunt Leones') which Antonovsky referred to as the promise land of the Sense of Coherence, of which he had a glimpse like Moses, but which only the Joshuas of the salutogenic school can

enter. Here we forge an empirical link between SOC and themes which amount to a theoretical and operational identification of *attitudes and value orientations* (proactive feeling about life and modern *Weltanschauung*) assumed to be adaptively suited to biological and cultural survival.

3.1. SOC is a valid predictor of health in the Hungarian population

We conducted validation via the application of multiple linear and logistic regression as described in section 2 on methods. Before embarking on a presentation of these data, however, we must mention the set of data which has, among others, a methodological function: serving reliability while possessing *substantive relevance*. As with the dependent variables health and well-being, we filtered out the effect of control variables (see section 2), here we likewise purify SOC and its components.

We have found that *gender* has a significant effect on the interviewee's summarised SOC level and on two of its three components. The average SOC value of men is better than the same level with women (Beta = $-.070$, $p = .009$); broken down into its components we get the same advantage on the side of men in terms of Comprehensibility and even more in Manageability (Beta = $-.080$, $p = .003$ and Beta = $-.090$, $p = .001$) while the advantage disappears in the domain of Meaningfulness (ns). Translated into ordinary language, these data mean that men have greater confidence in coping with stressor situations than women. Men are stronger in two components of this habit than women: first, they feel that they understand better the way the world is structured ('they know the ropes'); secondly, they feel they have at their disposal the means necessary for putting this knowledge into practice by carrying out their intentions based on these insights. The third component – Meaningfulness and affective motivation – shows the two genders levelling out. It is here that women make up for their minus, having a more refined sense for gaining meaning and affective motivation out of external and internal situations and states where they neither have a clear enough view of the situation nor sufficient means to execute their intentions.

Age has a less strong effect on SOC than gender. There is no significant difference between age groups in terms of the global SOC index, with some difference in the first two components only, alternating, rather interestingly, between the age groups. While those in the older age groups feel stronger in understanding the structure of the world ('the ropes' [Beta = $.055$, $p = .039$]), they believe less strongly in the Sense of Manageability, that is, the feasibility of goals derived from this understanding than the younger age group, as is indicated by the sign prefixed to Beta (Beta = $-.050$, $p = .060$).

However, *education* is a control variable much more dynamic than gender and age relative to SOC (Beta = $.227$, $p = .001$). This, again, is a credible datum: a longer period of education raised the SOC level significantly higher, in chime with Antonov-

sky's thesis of *GRR* → *SOC development dynamics*.⁷ This manifests itself not only in the global SOC index but almost invariably in all three components. Even refinement is plausible: although the probability of the null hypothesis can be rejected with the greatest certainty with respect to all three components ($p < .001$), the diverging Beta values reflect the fact that the two more 'intellectual' components of SOC, Comprehensibility and Meaningfulness, have been more markedly influenced by the level of education (Beta = .211, Beta = .223, respectively) than Manageability, a more material component (Beta = .157).

Table 2
Standardised regression coefficients (Betas) of SOC and its components bearing on the four health indices and the variance percentages explained by them (R^2)
– Controlled by variables: gender, age and educational level

<i>Dependent variables</i>	<i>Independent variables</i>							
	<i>Sense of Coherence</i>		<i>Comprehensibility</i>		<i>Manageability</i>		<i>Meaningfulness</i>	
	<i>Beta*</i>	<i>R²</i>	<i>Beta*</i>	<i>R²</i>	<i>Beta*</i>	<i>R²</i>	<i>Beta*</i>	<i>R²</i>
<i>Self-assessment of health</i>	–.295	8.3	–.282	7.6	–.262	6.6	–.220	4.6
<i>Vegetative lability</i>	–.434	17.9	–.431	17.7	–.362	12.7	–.324	1.0
<i>Number of chronic diseases</i>	–.199	3.8	–.201	3.8	–.178	3.1	–.132	1.6
<i>EDEC</i>	–.410	15.9	–.404	15.5	–.352	12.0	–.300	8.6

* Significance level in all connections $p < .001$.

It can be seen from the data reproduced in *Table 2* that even after the effect of the three control variables has been filtered out, the global index of Sense of Coherence and its components significantly predicts the indices of health. Taking a closer look at the data we see that the global SOC-29 test data – as could be expected – has greater predictive power than its components. The strongest of the components is Sense of Comprehensibility, which almost equals the predictive power of the global SOC

⁷ This important thesis states that SOC as a lasting and stable positive habit extending to the personality as a whole is a product of a lastingly favourable life experience of Generalized Resistance Resources. 'Clearly, if one has a high intelligence, lots of money, or a clear ego identity or lives in a stable, integrated culture – to mention some GRRs – there will be consequences not only for the emergence of a strong SOC, and therefore health, but for other areas of well-being as well' (ANTONOVSKY 1987, 181).

index. Manageability is remarkably weaker, and even weaker is Meaningfulness. It seems from the data, then, that *the location on the Antonovskian Ease/Dis-Ease Continuum* is decisively predicted by the *cognitive comprehensibility* of things from among the components of the SOC as general habit of *Weltanschauung* and feeling about life.⁸

Turning now from differences in the domain of independent variables to those between dependent ones, we see that the influencing power of global SOC and all three of its components is ‘most readily taken up’ by the results of the Vegetative lability index. The symptoms of vegetative lability can be divided into four kinds: those of the heart, of the stomach, general irritability and general feebleness. There is a natural temptation to check whether or not SOC and its components predict the appearances of these when chronic diseases already manifested are controlled. This prompted us to decide to include each chronic disease along with the usual control variables into a regression model. Results indicated that the predictive power of SOC relating to vegetative lability and the self-evaluation of state of health is retained even when chronic diseases are controlled! Since chronic diseases usually occur together with other chronic diseases, we simply present, instead of taking each combination by turns, how SOC influences the other two health indices when ‘Do you have a chronic disease or not?’ is controlled. We even take a further simplifying step in order to bring out the main point more clearly by using dependent variables in a dichotomised, independent variables (SOC and its components) in a trichotomised form.⁹ The influence of independent variables on the dichotomous dependent variable was estimated by using multiple, binary logistic regression models.

⁸ Danish researchers have concluded that the restriction of the power of SOC to psychical health, i.e. its probabilistically conjectured lack of influence on physical health may be connected with the fact that only emotional dynamics are relevant to the latter, while this is mixed with the mental in the SOC data. ‘We believe that two fundamental problems exist in relation to the SOC scale. The first problem is that the questions in the SOC scale are both of a mental and of an emotional nature. *We believe that it is the emotionality and not the mentality that determines the physical health*, which is the reason why it has not been possible to prove a strong association between SOC and physical health. We believe this is due to the fact that the scales mix up the two concepts’ (FLENSBORG-MADSEN et al. 2005, 768, *italics added*; cf. also VENTEGODT et al. 2005). Our own data contradict this thesis on two scores. Our complex EDEC index used as a SOC criterion also features medically diagnosed data, and Comprehensibility, the cognitive component of SOC, is thus given a role as a concurrent predictor.

⁹ We put down the self-assessment of health as *bad* when the answer to the question ‘Do you think your state of health is acceptable or bad?’ was *acceptable* or *bad*, as *good* if the answer was *good* or *excellent*. We drew the borderline between many and few vegetative lability symptoms at the median on the basis of the total score of vegetative lability and the total scores obtained for the particular groups of symptoms. We trichotomised SOC and its components by drawing score boundaries through splitting the sample into its thirds. We treated those in the lowest third as of low SOC, those in the middle third as of average, and those in the upper third as of strong SOC.

Table 3

The odds ratio values and the 95% level confidence interval for the odds ratio (C.I.) of SOC and its components relating to the self-evaluation of health, vegetative lability and its components. Results obtained through multiple binary logistic regression models, with gender, age, schooling and chronic disease as control variables

<i>Dependent variables</i>	<i>Independent variables weak versus strong</i>			
	<i>Sense of Coherence</i>	<i>Comprehensibility</i>	<i>Manageability</i>	<i>Meaningful- ness</i>
	<i>Odds ratio* (C. I.)</i>	<i>Odds ratio* (C. I.)</i>	<i>Odds ratio* (C. I.)</i>	<i>Odds ratio* (C. I.)</i>
<i>Self-assessment of health bad vs. good</i>	3.75 (2.78; 5.04)	3.36 (2.49; 4.52)	3.59 (2.66; 4.85)	2.70 (2.03; 5.59)
<i>Vegetative lability many vs. few symptoms</i>	9.19 (6.73; 12.55)	9.82 (7.16; 13.47)	5.49 (4.07; 7.40)	4.61 (3.46; 6.15)
<i>Heart complaints many vs. few symptoms</i>	3.00 (2.23; 4.04)	3.68 (2.73; 4.97)	2.01 (1.50; 2.69)	1.90 (1.43; 2.53)
<i>Gastric complaints many vs. few symptoms</i>	4.14 (2.98; 5.73)	3.52 (2.55; 4.87)	2.91 (2.12; 3.99)	3.19 (2.34; 4.35)
<i>Irritability many vs. few symptoms</i>	2.33 (1.70; 3.19)	3.02 (2.19; 4.16)	1.54 (1.13; 2.11)	1.52 (1.11; 2.07)
<i>Feebleness many vs. few symptoms</i>	7.65 (5.65; 10.38)	7.01 (5.17; 9.51)	4.60 (3.43; 6.17)	5.05 (3.79; 6.73)

* Significance level of all odds ratios: $p < .001$.

From the above we can conclude that the 29-item SOC test variable predicts also on the Hungarian population sample the general state of health both in its dimensions characterised by psychosomatic symptoms and the occurrence of chronic diseases.¹⁰

¹⁰ This raises the question whether all 29 items are needed for getting information about the individual's SOC for research purposes. To clear up this question we undertook factor analyses on the SOC variable as well as multiple regression analyses penetrating to the level of items with the help of the models presented in the foregoing. It is from these undertakings that the SOC-6 test took shape, a test which is the sum of six questions – with two questions for each component – extracted from SOC-29. We wish to use this 'nutshell test', deployable at a reasonable cost for the purposes of a national survey while sufficiently fine-grained, in the investigation which we outline in the Discussion section.

3.2. Sense of Coherence and well-being

We verify our assumption that SOC is more than just a health-predictor with our data acquired in the *domain of well-being*, a subject closely related to health but going beyond its conceptual extension (having less specific content).¹¹

Table 4

Standardised regression coefficients (Betas) of the SOC and its components relating to cognitive satisfaction and affective happiness and their two partial indices and variance percentages explained by them (R^2) controlled by the variables gender, age and schooling

Independent variables	Dependent variables							
	Cognitive satisfaction		Affect happiness		Satisfied with their own achievement in life so far		Satisfied with family life	
	Beta*	R^2	Beta*	R^2	Beta*	R^2	Beta*	R^2
<i>Sense of Coherence</i>	-.406	15.6	-.404	15.5	-.321	9.8	-.336	10.7
<i>Comprehensibility</i>	-.353	11.9	-.324	10.0	-.291	8.1	-.287	7.8
<i>Manageability</i>	-.362	12.7	-.349	11.8	-.261	6.6	-.284	7.8
<i>Meaningfulness</i>	-.341	11.1	-.385	14.1	-.282	7.6	-.305	8.9

* Significance level in each case $p < .001$.

From *Table 4* we can read off the connection between the indices of cognitive, calculative satisfaction and affective happiness and SOC and its three components, as well as, within cognitive satisfaction, of two part indices which contribute most forcefully to general satisfaction, namely 'satisfied with achievement in life so far' and 'satisfied

¹¹ Referring to the following passage from the American Declaration of Independence, GERSTER (1994, 238, *italics added*) points out the cultural-historical roots of the theme of well-being: 'We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.' Following the conception proposed by Nobel Prize winning economist Amartya SEN (1990) we examine the concept of happiness as an aspect of the quality of life, from the point of view which reveals our topic to be the 'functional quality of life' whose subject needs healthy *functioning* and entrepreneurial/creative freedom rather than being supplied with consumable goods, who wishes to secure opportunities and has an intention to learn and improve. The development of this area of research can be seen in the 'Subjective Well-Being (SWB)' project chain (DIENER 1984; EMMONS 1986; SCHULZE-BUSCHOFF 1997; VEENHOVEN 1984, 1993). Of special note from the point of view of our present topic is the idea of 'Subjective Well-Being' as a *feature to become an organic part of the character of an entire nation* (DIENER et al. 1995), i.e. the 'general disposition of nations' research project, which extends to 4.1 billion people in 55 countries, almost three quarters of the world's population in 1990, and which is based on the database of the international 'happiness survey' conducted by Veenhoven, which ranks Hungary as 35th in terms of SWB.

with family life'. What we find is that the connection is at its strongest where the summarising versions of both the dependent and the independent variables meet. Invariably, the global Sense of Coherence explains the highest variance percentage relating to the values of the global satisfaction and happiness variables. By no means trivially, there is no difference between the effects on satisfaction, on the one hand, and happiness on the other, their behaviour tending to diverge often. At the same time, there may be some surprises awaiting us in the thick of the details, the interrelations between the versions of both variables broken down into their details.

Let us see SOC broken down into its components first. Here we find the plausible result that while cognitive satisfaction is most strongly linked to Manageability, the same intimate relation connects affective happiness to Meaningfulness, which comprises emotional motivation. Clearly, a reasonable level of satisfaction with life requires the experience-based conviction that one has the means and resources necessary for reaching one's goals, and these are the persons who are stronger in terms of Sense of Manageability. The table also shows another credible fact about affective happiness: Meaningfulness manifests the other, strongest connection – that is, the affectively experienced sense of life is most likely to unfold – where the person is satisfied with his/her *family life*.

3.3. The attitudinal and value system content of Sense of Coherence

We have now arrived at the most portentous paragraph of our study, the point where we have ventured further than anywhere else from restricting SOC to its function as health predictor, where we – according to Antonovsky's future-oriented surmise – 'hypothesize positive consequences of a strong SOC for task performance, too, including the ability to realize one's potential', and where we examine this hypothesis by using convergent criteria of measurable, that is, *attitudinal and value system*, variables.

As for these conceptual tools, it is well-known that the period of the remarkably successful notion of *attitude*, ushered in by the work of early twentieth-century classics Thomas and Znaniecki, was followed by the era of *value*, a concept which we can deploy as a kind of passkey 'Universalschlüssel' (KLAGES et al. 1992) in several *middle range* domains of research, to unlock the hideout of *the common ultimate explanatory power*. Although attitude and value are sometimes contrasted as rival tools of analysis,¹² we are using them both, one after the other, in bringing the 'mystery' of Sense of Coherence to the surface. More specifically, we first looked for convergent validity evidence in the test data of an expectably relevant attitude, namely

¹² Milton ROKEACH (1976) elevates the *category of value* into a leading position, for several reasons including the one that a person has fewer values than attitudes. While an adult can have hundreds of thousands of beliefs, thousands of attitudes (by which he takes an evaluative stance toward topics and objects and situations), he can only have a few dozen *instrumental values*, a few *goal values* and, by the nature of the case, just one single *system of value*. The concept of value thus emerges as more fundamental and more independent of relations to objects.

SCANLAN–FLEXMAN’s ‘entrepreneurial attitude’ (1982), and then we turn to a classic piece of value system theorising (MORRIS 1956), ‘ways to live as conceived values’ for drawing from its construct the operationalised variables with which we *check the hypothesis* of the attitude and value content of SOC and *explore the nature of these contents*.

3.3.1. Genuine entrepreneurial attitude

As far as a *genuine entrepreneurial attitude* is concerned, then, the list of its attitudes and behaviours includes dynamism, energy, confidence, provision for the future, taking care of money matters, putting up with failure, a precise idea of the state of the business, specification of one’s levels of performance, putting up with uncertainty, irreproachableness and reliability, risk.¹³

Table 5 shows the Beta values only of those items which exhibit some sort of significant connection with SOC or one or another of its components. The profile of SOC and its three components emerges clearly from them. The first and plausibly most important of the items arranged according to their strength of connection with SOC is this: ‘I like to take personal responsibility for success and failure’. This self-characterisation captures the quintessence of the way Antonovsky and his followers see this habit. Both SOC as originally conceived and this attitude closely linked to it reflect the demand for control which best guarantees the activation of Generalised Resistance Resources, if necessary, and its prudent enrichment in the interest of coping with future stressors.

By no means surprisingly, the habit of taking responsibility can be discerned as an active component not only in global SOC but also in its three components. The sense of the comprehensibility of the world and interpersonal situations may be most intimately linked to a state of the perceiving subject which is characterised by his own reliability, more specifically promise-keeping. The content of Meaningfulness – emphasised by Antonovsky himself – that affective motivation is secured by the subject’s feeling that the effort is worth making, coincides with confidence about the future. Again, the fact that this Scanlan item comes to the fore not only in the global SOC index but also in the Sense of Manageability component (Beta = .163) is by no means accidental: in order for me to trust in the feasibility of my intentions, I have to feel a need for control over things, the possibility of taking responsibility for them.

¹³ After work done on minor samples in Hungary, we performed the test on a nationally representative sample in 2000 and 2001 and satisfied ourselves of its power to shed light on several kinds of detail (VARGA 2003, 214–28).

Table 5

Standardised regression coefficients (Betas) and explained variance percentages (R^2 s) of some items of the Scanlan entrepreneurial attitude test in relation to the Sense of Coherence and its three components controlled by the variables: gender, age and schooling

Independent variables	Dependent variables							
	Sense of Coherence		Comprehensibility		Manageability		Meaningfulness	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
Gender	-.077	.002	-.084	.001	-.094	.000	-.021	.383
Age	-.050	.047	.017	.515	-.106	.000	-.060	.014
Education	.148	.000	.155	.000	.101	.000	.128	.000
I take personal responsibility	.166	.000	.131	.000	.163	.000	.146	.000
I set a personal level and raise it	.127	.000	.123	.000	.092	.001	.115	.000
I do not leave off difficult matters	.108	.000	.084	.004	.117	.000	.087	.001
I keep my promises	.098	.000	.143	.000	.046	.090	.054	.035
I commit myself completely	.098	.001	.055	.063	.094	.001	.116	.000
I build for the future	.095	.000	.018	.494	.098	.000	.151	.000
I set goals with deadlines	.067	.021	.015	.632	.071	.018	.102	.000
I believe I will get there	.027	.341	.015	.608	.059	.043	-.001	.978
With the intensity I like	-.028	.268	-.035	.181	-.053	.041	.018	.475
Control Variables' R^2	5.10%		4.90%		3.20%		4.90%	
Scanlan Questions' R^2	18.20%		11.90%		15.00%		22.50%	

The second strongest habit element in predicating SOC is this: 'I always set myself a level to be reached and raise it after successful achievement'. This piece of behaviour reflects the proactivity of the person with high SOC, which also permeates the three components. The habit elements ranked third and fifth seem to support the theoretical position of those (KOBASA et al. 1982; MADDI 2004; STOSBERG 1994; STRÜMPFER 1995) who see *hardiness* in SOC and *fortigenesis* in salutogenesis. 'I do not leave off problematic matters before solving them' and 'I always commit myself fully to what I am doing': As far as *perseverance* is concerned, the significant strength of the connection is shared by all three components but equally, of course, by Mean-

ingfulness, because of the par excellence *committing* power of Manageability and an affective state of being motivated. Finally, the last two items reflect trust and self-confidence, treated as the essence of SOC by several authors, and organically linked to them (CSÍKSZENTMIHÁLYI 1997): 'I believe that I can get what I want' and 'I like to work long and intensively on the jobs I like', which – as was to be expected – indicate significant connections in the column of Manageability only, that is, not in the column of global SOC.

With this we have already entered a discussion of the specific features of the particular components. The goal-orientedly proactive and responsibly committed entrepreneurial habit seems to be most significantly densely interwoven with the Sense of Manageability. Meaningfulness comes second, with the inclination to become fully affectively committed becoming a guiding factor, in addition to a preference for personal responsibility-taking, as we mentioned above. The moderate role of Comprehensibility, once declared to be foundational to SOC, is a somewhat surprising finding. What struck us immediately here was the fact that it is the component which has by far the strongest link with the item 'I like to be regarded as one who always keeps his word' (as the counterpoint, it must be noted, to a trickily 'realist' pole such as 'You can't always keep promises, unexpected events can change one's priorities'), and this remained the distinctive feature of Comprehensibility in subsequent phases of the analysis. That is, we must accept it as a fact that the understandability and predictability of the conduct of persons engaging in interaction with us decisively depends on whether or not we ourselves view our own predictability as something that 'goes without saying'.

3.3.2. Morrisean planetary value system

As for the set of data of the Morrisean (MORRIS 1956) planetary value system taken in a parallel fashion – the construct which goes beyond health and well-being but sheds light on the nature and effect of SOC in terms of convergence validity – we must state, by way of introduction, that we know very few theories that bridge two points so wide apart as the axiological system in question inspired by the socio-pragmatic approach of Pierce, Dewey and Mead. The theory in question forges a connection between a preference *biologically* rooted in the relative dominance of the three germ layers of the fertilised ovum (*ectoderm – mesoderm – endoderm*) assumed to be at work behind Sheldon's three somatotypes (leptosom, athletic, picnic) – a preference which in Mead's theory of action corresponds to three phases of action (perception, manipulation, consumption), on the one hand, and the three value axes discernible in the *cultures of the world* (*Buddhist versus Mohammedan, Promethean versus Christian, Dionysian versus Apollonian*), on the other. In the middle of the hexagon formed by the three axes, Morris places *Maitreya*, a synthesis of the other axes named after Maitreya Buddha, supposed to come every five thousand years to reconcile every-

thing, an idea embraced and taken up by trends marked by a way of thinking about humanity on a giga-scale (e.g. Aquarius – New Age).¹⁴

We have taken over from Morris' system in the present survey only the following six¹⁵ 'ways to live', albeit not in their full version running to 10–15 lines but only in the following condensed form:

1. (Apollonian) Preserve the best that man has attained.
2. (Buddhist) Cultivate independence of persons and things.
3. (Christian) Show sympathetic concern for others.
4. (Dionysian) Experience festivity and solitude in alternation.
6. (Promethean) Constantly master changing conditions.
7. (Maitreyan) Integrate action, enjoyment, and contemplation.

We must mention at the beginning of our comment on this table, which brings the Morrisean planetary values into a connection of convergent validity with the value contents of SOC, that the two most marked Beta data are not represented in it even though they are of decisive importance for the description of SOC from an external point of view. The original regression equation included, in addition to the above five, Buddhist and Dionysian, which produced such strong standardised regression coefficients – with a minus sign, however! – that they siphoned off all the significant predictive power of the entire model. To put it quite plainly, what happened was that by asking in Morris' terms what the value content of SOC was, the answer of our regression equation was: the *rejection of Buddhist and Dionysian in the largest measure* (Beta = .088, $p = .001$, and Beta = .071, $p = .011$, respectively).¹⁶ Compared with the others, the rejection was so strong that they siphoned off all predictive power from the other five ways to live which were left.

¹⁴ The senior co-author of the present article first joined an international research project based on MORRIS' system (1964) directed by UNESCO in the early 1960s. His most recent nationally representative surveys conducted with this method date from 2000 and 2001 (VARGA 1970, 2003).

¹⁵ That is, we have left out the Muslim as offering no points of reference in our interviewees' experience of life, whereas we retained the Promethean in two of its elements: besides the title given by Morris (Promethean [1]), including from the longer formulation the sentence 'Man should rely on technical advances made possible by scientific knowledge' (Promethean [2]). We did not use the labels themselves, of course.

¹⁶ In the case of the connection with Morris' data obtained through ranking, it is the negative sign of the Betas which indicates positive correlation, and vice versa. Here we must mention, in addition to the plausible and reliable information, a probable artefact effect, too: Buddhist and Dionysian were not included in our questionnaire in the abridged form above. What we used was a compilation of elements from the longer version which we expected to be generally accessible such as 'One should aim to moderate the desires whose satisfaction is dependent upon forces outside of oneself' or 'One should not be too dependent on particular people or things, should not be self-sacrificing'. Thus the overemphasised element of self-discipline provided a 'value' which the strong SOC person had to reject, and this holds also of the categorical rejection of 'self-sacrificing' featured in our version of the Dionysian.

Table 6
Standardised regression coefficients (Betas) and explained variance percentages (R^2 s)
of some items of the Morrisseyan 'Ways to live as conceived values' test in relation
to the SOC and its three components controlled by the variables gender, age and schooling

<i>Independent variables</i>	<i>Dependent variables</i>							
	<i>Sense of Coherence</i>		<i>Comprehensibility</i>		<i>Manageability</i>		<i>Meaningfulness</i>	
	<i>Beta</i>	<i>Sig.</i>	<i>Beta</i>	<i>Sig.</i>	<i>Beta</i>	<i>Sig.</i>	<i>Beta</i>	<i>Sig.</i>
<i>Gender</i>	-.076	.006	-.074	.007	-.101	.000	-.023	.398
<i>Age</i>	.000	.986	.049	.073	-.054	.046	-.006	.817
<i>Education</i>	.208	.000	.203	.000	.135	.000	.203	.000
(Maitreyan) <i>Harmonise thought, action, pleasure</i>	-.065	.018	-.027	.319	-.089	.001	-.062	.035
(Promethean [1]) <i>Overcome changing circumstances through resolute action</i>	-.059	.030	-.049	.077	-.051	.065	-.057	.132
(Christian) <i>Sympathise with people instead of using them</i>	-.053	.052	-.004	.898	-.070	.012	-.078	.115
(Promethean [2]) <i>Build upon technological progress made possible by science</i>	-.051	.061	-.042	.122	-.049	.071	-.043	.005
(Apollonian) <i>Cling to best things reached and to cultural traditions</i>	-.025	.356	.004	.884	-.036	.193	-.041	.023
<i>Control Variables' R²</i>	4.90%		4.60%		3.10%		4.60%	
<i>Scanlan Questions' R²</i>	1.00%		.40%		1.40%		1.20%	

At this point we resorted to the methodological measure of running the programme of the regression equation without these two variables which are marked but overshadow finer shades of information. In this version, stripped down to positive correlates, we obtained the relevant pattern which is expressed in *Table 6* by the ranking of ways to live data in terms of predictive power. According to it, the value system of

the strong SOC person assigns first place to the Maitreyan value, which integrates thought (meditation), action (the shaping of things) and consumption (pleasure), but the other two are close behind: emphatically proactive Promethean, and Christian, a value fostering mutual social support. Promethean both in its abstract approach and in its practical behaviour relies on the achievements of science and technology. Conservative Apollonian comes last, having produced no significant prediction in global SOC or its first two components, only in Meaningfulness.

If we turned now to the value content of components, we might mention one or two *vague connections* (for instance, the fact that traces of the influence of Meaningfulness can be discerned in two values additional to Apollonian, namely Promethean and Maitreyan), but explained variance is so meagre here that the real task is to make clear why these Morrisean planetary values do not generally produce stronger convergent validity predictions with respect to this construct of Antonovsky.¹⁷ Some of our results – the Maitreyan–Promethean–Christian triad being foremost and the disqualification of anti-self-assertive Buddhist and anti-self-sacrificial Dionysian – add important refinements to our existing knowledge of Sense of Coherence.

4. Discussion: A diagnosis of the Hungarian state of mind with the theme of health in focus and a more comprehensive view

Since the *Ottawa Charter* (1986), there has been a growing sense of realisation all over the world, both in the health care system in its entirety and in its core, that is, medical research, that medical treatment and the health care system in effect contribute very little to people's health, and this new insight is combined with the conviction that the key idea is to preserve and improve one's 'health capital'. This insight on a mega-scale which allies itself mainly with the 'grand strategy' (Liddel Hart) of defence against stressors and harmful lifestyles is combined with the deeper thought that harmful lifestyles are usually themselves spawned and sustained by social and cultural conditions. Despite all this, there is still not enough emphasis on the dimension of the causal contribution and competence of the individual versus drifting, or more generally the classic variable of Internal vs. External Locus of Control (ROTTER 1966), a vantage point whose lack ANTONOVSKY misses in 'behavioral medicine' by using the metaphor which we cited in our introduction: 'this school of thought tends to as-

¹⁷ Value system researchers find some reassurance in what is expressed in the cautious realist 'bounded rationality' paradigm of economic Nobel Prize winner Herbert SIMON (1982–1997), namely that *in praxi* we can never count on the unobstructed efficacy of guiding instances such as dominant values (indeed, such efficacy just about 'muddles through' the medium which is divided by multidirectional interests and value orientations). Thus, in sociological axiology, we have to make do with such 'modest and feeble' results, but the low-key messages they impart are sometimes more important than other, conspicuous facts and relations which are at the same time trivial.

sume that people are jumping into the river of their own volition and refusing to learn to swim' (1987, 90).

Our study reports the results of a research project which supports the additional grain of truth in Antonovsky's metaphor, on the empirical foundation of a survey conducted in Baranya county, Hungary. Beyond dispute, one can derive from the set of stressors and more specifically from social and cultural conditions the state of health of a population but beyond even this sphere of influence, one layer further inside, *capability to swim and the degree of this capability* is also a factor in survival. The skill of swimming, acquired by most people by the time of young adulthood, modelled in the psychological construct of the Sense of Coherence and operationalised in the psychometric instrument of the SOC-29 scale actually has empirically testable connections with the place on the Ease/Dis-Ease Continuum (EDEC) scale. We identified this place on our Baranya county population through measurement with the help of a three-facet battery: the data sets on *self-assessment of health*, *vegetative lability complaints*, and *complaints about chronic diseases* channeled into one index.

At the same time, advancing further in the problem left to sociology by Antonovsky, we extended our investigation beyond the theme of health to those of *well-being* and *quality of life*. We found that the salutogenic effect is as strong in these areas as in the state detected by health indices. The hypothesis of a movement up and down the EDEC scale which parallels movement up and down the SOC scale is probabilistically supported even if the Ease/Dis-Ease Continuum is examined outside a domain bordering pathology, that is, if one goes deep into the domain of health, on the scale are stretches of various degrees of cognitive satisfaction and affective happiness.

After advancing to the justification of the insight that the effect of the habit governing the dynamics of movement along the EDEC scale, that is, Sense of Coherence, is not confined within the above-mentioned bordering domain, we became even more curious about the deeper, hidden nature of this 'mystery of health and well-being'. We might as well say: the *mystery of SOC*. To unravel this mystery we turned to two conceptual tools borrowed from sociology and social psychology: *attitude* and *value* (as the 'Universalschlüssel' of several middle range domains of research). What we found out was that the entrepreneurial attitude of personal responsibility taking (as well as perseverance in difficult tasks, commitment and the setting of demands on oneself and the realist raising of their level) is at the core of SOC. As for its system of value, we identified as dominant motifs the integrative value known to sociologists as Maitreyan, the proactive value known as Promethean and the value known as Christian, which is characterised by the fostering of mutual social support.

With the secret perhaps found out, what is left to be done is to feed the finding back to the social and cultural conditions from whose base Antonovsky originally derived its dynamism. In other words, we have to check these research results against the cluster of problems of society, more specifically *the health and general well-being of the Hungarian national community*. This is one of the topics to which ANTONOVSKY drew attention as crying out for investigation in vindicating special life-shaping dynamics for the autonomous construct of 'the SOC as a group property':

Finally, we turn to the question of the difference it makes to the individual's health whether one belongs to a group or groups with a weak or strong SOC. Does knowing this make for any better prediction than simply knowing the SOC level of the individual?

(1987, 178)

He took the main argument for a *Yes* from Pearlin and Schooler's research:

[T]here are important human problems ... that are not responsive to individual coping responses. Coping with these may require interventions by collectivities rather than individuals. Many of the problems stemming from arrangements deeply rooted in social and economic organization may exert a powerful effect on personal life *but be impervious to personal effort to change them.* (PEARLIN & SCHOOLER 1978, 18, *italics added*)¹⁸

The political transformation of Eastern Europe and its repercussions in the social and economic spheres, disastrous despite certain promising prospects, are exactly 'historical stressors', against which *coping strength provided by individual SOC is insufficient, and which make inevitable the use of such sociological-social psychological constructs as 'the Sense of Coherence of the Nation'*. Antonovsky adds the following comment to the quotation from Pearlin and Schooler:

They are referring, as I understand it, not only to stressors confronted by individuals about which they can do nothing without the utilization of group resources, but also to collective stressors, to *problems confronting the entire collectivity*. In such cases, the SOC of the individual is of considerably less significance in the resolution of tension than is the group SOC. True, the former is relevant in dealing with the regulation of emotion and thus is important. But in coping with the collective stressor directly, it is what the group does that matters. (ANTONOVSKY 1987, 178, *italics added*)

What a befitting characterisation of our present historical state! Problems and blows of a stressing kind and stressing severity affect the nation as a collective whole, and even the individual with high SOC can only retain a restricted level of proactivity, undergoing rather than acting out (perhaps undergoing with some ease, thanks to good tension management) a 'history which has turned into a fate' (LOSONCZI 2005). But even if we are using the construct of 'SOC as a group property' (where by 'group' we are focusing more and more on the nation) as an independent variable on a historical scale, we find the most direct empirical evidence in the *prediction of state of health*. ANTONOVSKY's cogent argument goes like this:

A group¹⁹ whose individual members tend to perceive the collectivity as one that views the world as comprehensible, manageable, and meaningful, and among whom there is a high degree of consensus in these perceptions, is a group (a nation) with a strong SOC. (1987, 174)

Unfortunately, in the case of Hungarians – as István BIBÓ (1986) explained in his theory about the 'distorted Hungarian character' developed as a consequence of 'un-

¹⁸ Cf. ANTONOVSKY 1987, 178.

¹⁹ We can add, stretching the scale to encompass the nation where as he often refers to Israel so we can refer to Hungary. (S.J. & K.V.)

learnable historical situations' – we should be interested necessarily by the implications of the *other end of the SOC scale*. ANTONOVSKY proves a sensitive researchers' conscience and empathy here as well:

What happens *at the other end of the scale* is more problematic. Which has the weakest SOC: (1) that collectivity (nation) in which the variance of individual perceptions of the group is greatest, or (2) the group in which there is a general consensus about group incoherence? (1987, 175)

Although he admits that he cannot answer the question, the problem is still very much alive today: is a low average value of SOC worse than its high distribution value, or vice versa? In other words: a chaotic mental disposition of weariness evenly distributed (low comprehensibility, paralysing helplessness, emotional de-motivation) with generally disastrous morbidity and mortality data, or a deep cleavage, gap, abyss, with the lucky few on one of its higher, 'more sunny' edges understanding, doing and enjoying what their exceptional fate affords them, while exploitation and decay reigns on the lower and darker side? Since neither Antonovsky nor ourselves in our present investigation can answer the question *in merito*, we would like to refer, by way of a conventional *Conclusion*, to our next research undertaking in which we will be trying to find out (paying equal attention to the comparison between averages and standard deviances indicating the measure of social division while placing the normative data of SOC in the context of an international comparison) from where more acute dangers are to be expected, and where a national action research and development project may find a promising point of attack.

References

- ANTONOVSKY, A. (1979) *Health, Stress, and Coping* (San Francisco: Jossey-Bass).
- ANTONOVSKY, A. (1984) 'The Sense of Coherence as a Determinant of Health' in J.D. MATAZZO, A.J. HERD & S.M. WEISS, eds., *Behavioral Health: A Handbook of Health Enhancement and Disease Prevention* (New York: Wiley) 114–29.
- ANTONOVSKY, A. (1985) 'The Life Cycle, Mental Health and the Sense of Coherence', *Israel Journal of Psychiatry and Related Sciences* 22, 273–80.
- ANTONOVSKY, A. (1987) *Unraveling the Mystery of Health: How People Manage Stress and Stay Well* (San Francisco: Jossey-Bass).
- ANTONOVSKY, A. (1992) 'Using the SOC Scale: Feasibility, Reliability, Validity (Convergent Validity), Factor Structure of the SOC Scale', *Salutogenesis: The Sense of Coherence Newsletter* Nr.4 (Feb) 1–13.
- ANTONOVSKY, A. (1993) 'Gesundheitsforschung versus Krankheitsforschung' in A. FRANKE & M. BRODA, eds., *Psychosomatische Gesundheit: Versuch einer Abkehr vom Pathogenese-Konzept* (Tübingen: DGTV) 3–14.
- BAHRS, O., S. HEIM, V. KALITZKUS, P. MATTHIESSEN, P. MEISTER & H. MÜLLER (2003) 'Salutogenesis in General Practice: How to Use the Potential of Doctor-Patient-Communication to Promote Health', paper at 2nd Conference on Making Sense of: Health, Illness and Disease (St. Hilda College, Oxford, 14–17 Jul).

- BIBÓ, I. (1986) 'Eltorzult magyar alkat, zsákutcsás magyar történelem' in I. BIBÓ (1986–1990) *Válogatott tanulmányok*, ed. T. HUSZÁR, I. VIDA & E. NAGY, 4 vols. (Budapest: Magvető) 2:569–619.
- CSÍKSZENTMIHÁLYI, M. (1997) *Flow: A tökéletes élmény pszichológiája* (Budapest: Akadémiai).
- DIENER, E. (1984) 'Subjective Well-Being', *Psychological Bulletin* 95, 542–75.
- DIENER, E., M. DIENER & C. DIENER (1995) 'Factors Predicting the Subjective Well-Being of Nations', *Journal of Personality and Social Psychology* 69, 851–64.
- EMMONS, R.A. (1986) 'Personal Strivings: An Approach to Personality and Well-Being', *Journal of Personality and Social Psychology* 51, 1058–68.
- FELVINCZI, K. (2002) Az egészséges életvezetés képességét kialakító tananyag kidolgozása, ki próbálása, és hatásvizsgálata 6–14 éves populáció körében (PhD diss., University of Debrecen, Debrecen).
- FLENSBORG-MADSEN, T., S. VENDTEGODT, J. MERRICK (2005) 'Why Is Antonovsky's Sense of Coherence Not Correlated to Physical Health? Analysing Antonovsky's 29-item Sense of Coherence Scale (SOC-29)', *The Scientific World Journal* 5, 767–76.
- GALDSTON, I. (1954) *The Meaning of Social Medicine* (Cambridge, Mass.: Harvard UP for Commonwealth Fund).
- GERSTER, F. (1994) 'Ansichten über Lebensqualität: Parteipolitischer Konsens und Dissens' in A. BELLEBAUM & K. BARHEIER, eds., *Lebensqualität: Ein Konzept für Praxis und Forschung* (Opladen: Westdeutscher) 235–49.
- HENNENHOFER, G. & K.D. HEIL (1975) *Angst überwinden: Selbstbefreiung durch Verhaltenstraining* (Reinbek b. Hamburg: Rohwolt).
- JEGES, S. (1997) 'Az egészség mint megőrzendő érték egy regionális felmérés tükrében' in Gy. CZÖNDÖR, ed., *Az egészségpénztárak az egészségügyi ellátórendszer szolgálatában* (Budapest: Kölcsonös Segélyegylet Támogató Alapítvány) 13–31.
- JEGES, S., T. TAHIN & A. CSANAKY (1996) 'Az egészségi állapot változása pécsi követéses vizsgálat alapján', *Egészségügyi Gazdasági Szemle* 34, 389–403.
- JEGES, S., T. TAHIN & Á. TÓTH (1997) 'Az egészségi állapot változása 1989–1996 között Baranya megyei falvakban és Pécssett követéses egészség-szociológiai vizsgálat alapján', *Egészségügyi Gazdasági Szemle* 35, 207–17.
- KLAGES, H., H.-J. HIPPLER & W. HERBERT, eds. (1992) *Werte und Wandel: Ergebnisse und Methoden einer Forschungstradition* (Frankfurt a.M. & New York: Campus).
- KOBASA, S.C., S.R. MADDI & S. KAHN (1982) 'Hardiness and Health: A Prospective Study', *Journal of Personality and Social Psychology* 42, 168–77.
- KOPP, M. & Á. SKRABSKI (1992) *Magyar lelkiállapot* (Budapest: Végeken Alapítvány).
- LOSONCZI, Á. (2005) *Sorsba fordult történelem* (Budapest: Holnap).
- MADDI, S.R. (2004) 'Hardiness: An Operationalization of Existential Courage', *Journal of Humanistic Psychology* 44, 279–98.
- MORRIS, C. (1956) *Signification and Significance: A Study of the Relations of the Signs and Values* (Cambridge, Mass.: M.I.T.).
- MORRIS, C. (1964) *Varieties of Human Value* (Chicago & London: U of Chicago P).
- MUELLER, D.J. (2002) 'Re: Concurrent versus Convergent Validation', message (of 9 Apr) posted to AERA Division D: Measurement and Research Methodology Forum (AERA-D Archives – April 2002, Nr.7) no pagination, retrieved 10 Aug 2006 from <http://lists.asu.edu/cgi-bin/wa?A2=ind0204&L=aera-d&T=0&F=&S=&P=1352>.
- OLÁH, A. (2005) *Érzelmek, megküzdés és optimális élmény* (Budapest: Trefort).

- PEARLIN, L.I. & C. SCHOOLER (1978) 'The structure of coping', *Journal of Health & Social Behavior* 19, 2–21.
- ROKEACH, M. (1976) *Belief, Attitudes and Values: A Theory of Organization and Change* (San Francisco, Washington & London: Jossey-Bass).
- ROTTER, J.B. (1966) *Generalized Expectations for Internal versus External Control of Reinforcement* (Washington: APA).
- SCANLAN, T.J. & N.A. FLEXMAN (1982) *Running Your Own Business* (Texas: Argus).
- SCHUBERT, B. (2006) 'Herr Roemer, warum tun Sie das? Das Modell der Salutogenese und seine Übertragung in die Physiotherapie am Beispiel eines querschnitt-gelähmten Patienten', *pt - Zeitschrift für Physiotherapeuten* 58, 142–46.
- SCHULZE-BUSCHOFF, K. (1997) 'Lebensentwürfe, Lebensformen und Lebensqualität', *Zeitschrift für Soziologie* 26, 352–67.
- SEN, A. (1990) *The Standard of Living* (Cambridge etc.: Cambridge UP).
- SIMON, H.A. (1982–1997) *Models of Bounded Rationality*, 3 vols. (Cambridge: MIT).
- SKRABSKI, Á., M. KOPP, S. RÓZSA & J. RÉTHELYI (2004) 'A koherencia mint a lelki és testi egészség alapvető meghatározója a mai magyar társadalomban', *Mentálhigiéne és Pszichoszomatika* 5, 7–25.
- SMITH, D.F. (2002) 'Functional Salutogenic Mechanisms of the Brain', *Perspectives in Biology and Medicine* 45, 319–28.
- SPIELBERGER, C.D. & R.L. RICKMAN (1990) 'Assessment of State and Trait Anxiety in Cardiovascular Disorders' in D.G. BYRNE & R.H. ROSENMAN, eds., *Anxiety and the Heart* (New York: Hemisphere) 73–92.
- SPSS (1997) *The SPSS Base 7.5 for Windows User Guide* (Chicago: SPSS).
- STOSBERG, M. (1994) 'Lebensqualität als Ziel und Problem moderner Medizin' in A. BELLEBAUM & K. BARHEIER, eds., *Lebensqualität: Ein Konzept für Praxis und Forschung* (Opladen: Westdeutscher) 101–19.
- STRÜMPFER, D.J.W. (1995) 'The Origins of Health and Strength: From "Salutogenesis" to "Fortigenesis"', *South African Journal of Psychology* 25:2, 81–89.
- TAHIN, T., S. JEGES & A. CSANAKY (1993) 'Az egészségi állapotot és az orvoshoz fordulást befolyásoló demográfiai és társadalmi tényezők', *Demográfia* 36, 427–53.
- TAHIN, T., S. JEGES & K. LAMPEK (2000a) 'Iskolai végzettség és egészség', *Demográfia* 43, 70–93.
- TAHIN, T., S. JEGES & K. LAMPEK (2000b) 'Az iskolai végzettség és egészségi állapot változása követéses vizsgálat alapján', *Demográfia* 43, 305–34.
- VARGA, K. (1970) 'The View of Life of Hungarian Students: An International Comparison', *Journal of Cross-Cultural Psychology* 1, 169–76.
- VARGA, K. (2003) *Értékek fénykörében: 40 év értékutató és jelen országos értékvizsgálat: Adalék egy új nemzetstratégia megalapozásához* (Budapest: Akadémiai).
- VARGA, K. (2005a) 'A salutogenezisről – képben és fogalomban', *Egészségfejlesztés* 46:3, 15–22.
- VARGA, K. (2005b) 'Utópia nélkül a XXI. századba', *Valóság* 47:7 (July) 1–28.
- VARGA, K. (2006) 'A Delphi Consultation on Occasion of Joining the European Union' in H. KREUTZ & K. VARGA, eds., *Is There a Chance for a 'Value-Rational' Society? Possible Futures of a Nation in Central Europe: The Case of Hungary*, special issue of *Ange wandte Sozialforschung* 26, 3–4.
- VEENHOVEN, R. (1984) *Conditions of Happiness* (Dodrecht, Boston & Lancaster: Reidel).
- VEENHOVEN, R. (1993) *Happiness in Nations* (Rotterdam: Risbo).

- VENTEGODT S., T. FLENSBORG-MADSEN, N. ANDERSEN, M. NIELSEN, M. MOHAMMED & J. MERRICK (2005) 'Global Quality of Life (QOL): Health and Ability Are Primarily Determined by Our Consciousness: Research Findings from Denmark 1991–2004' *Social Indicators Research* 71, 87–122.
- WARR, P., J. COOK & T. WALL (1979) 'Scales for the Measurement of Some Work Attitudes and Aspects of Psychological Well-Being', *Journal of Occupational Psychology* 52, 129–48.