

# Chapter Seven

## Limitations of the study, and recommendations for future research

### 7.1 INTRODUCTION

This chapter discusses the overall implications of the findings of the current research. Limitations in the research design and methods of data analysis are also discussed, and recommendations are made for future research with the SOC Scale, particularly within a South African context. It may be noted that suggestions for such possible research are mentioned throughout this chapter, as and when various topics are discussed, although the bulk of the suggestions are presented in the very final pages of this thesis, namely in section 7.4.

### 7.2 LIMITATIONS IN THE RESEARCH DESIGN

#### 7.2.1 Limitations of the instruments

##### *Sense of Coherence Scale*

The SOC Scale is a self-report instrument, and some respondents may have difficulty in understanding the questionnaire's format. In the current research, several questionnaires were filled in incorrectly, all by disabled participants. This was despite the instructions which appeared at the top of the SOC Scale. Having observed this problem, the researcher gave more detailed instructions to the undergraduate group, and no participants in this group used the incorrect method. The incorrect method was as shown in Figure 6.1:

Fig 6.1. Example of incorrect response method

1. When you talk to people do you have the feeling that they don't understand you?								
Never have this feeling. <b>X</b>	1	2	3	4	5	6	7	Always have this feeling.
						<b>X</b>		

instead of as shown in Figure 6.2:

Fig 6.2. Correct response method

1. When you talk to people do you have the feeling that they don't understand you?								
Never have this feeling.	1	2	3	4	5	6	7	Always have this feeling.
		<b>X</b>						

In the incorrect method, participants had apparently selected the anchor phrase with which they identified most strongly, and had rated it from 1 to 7. The relationship between the two anchoring phrases appeared to have been overlooked, so that respondents perceived two independent, but simultaneous and competing, scales. In this example the two scales would have been: 1) “Never have this feeling”—rated from 1 to 7; and 2) “Always have this feeling”—rated from 1 to 7.

Most of the participants who used the incorrect method were disabled college students, and it is possible that they had a relatively low level of education and were unfamiliar with surveys and self-report scales. Most of them were not English first-language speakers, and they may have misunderstood the instructions or not read them carefully enough. Eight SOC Scale questionnaires had to be discarded as a result. This problem has implications for research using the SOC Scale with groups that might misunderstand the scale’s format. It is recommended that when the SOC Scale is presented to participants, an example of the correct way of responding be shown at the outset (Antonovsky, 1993).

In the current study, a sheet requesting biographical information was attached to the SOC Scale. However, participants were not asked for information about their socio-economic status. The accurate quantification

of information about socio-economic status probably would have been difficult. Both samples were known to consist primarily of people who were not earning or were marginal or part-time earners, or who depended on the financial support of family members or on state disability grants.

This lack of information constitutes a shortcoming of the study, since socio-economic status is likely to be an important determinant of SOC (Antonovsky, 1987; see 3.3.6). Antonovsky (1987) emphasised that people with higher socio-economic status are more likely to develop and maintain a stronger SOC because they have easier access to resources. In the current study it was not known whether the groups differed significantly in terms of socio-economic status, and if so what the differences were. No empirical analyses could be conducted using socio-economic status as a variable, despite its presumed importance in determining SOC.

Similarly, while the educational level of the undergraduate group was known, it remained partly unknown for the entire disabled sample, since participants in this group were not asked to indicate their educational level (see 4.2.3). This oversight on the part of the researcher constituted another fairly serious shortcoming of the study, since educational level is also quite likely to be linked to SOC (Antonovsky, 1987). In particular, lack of information in this area precluded a more thorough investigation of the college group's anomalous results.

In terms of the SOC Scale items themselves, some limitations became apparent during the course of the research. Several residential disabled respondents commented that if they were to rate their care-givers (e.g. for items 1, 2, 3 5, 6, 9, 23 and 24) they would give far lower scores than if they rated their friends and family. They felt that being able to choose only one score forced them to give an inaccurate picture of their perceptions and experiences.

In other instances (e.g. items 7, 10, 11, 13, 14, 25 and 28), several residential disabled respondents indicated that they would respond differently according to whether they were expected to apply “normal” or “disabled” standards. Furthermore, some participants who had been disabled in accidents indicated that this choice felt unrealistic, since they could remember being non-disabled at an earlier point in their lives, and could thus relate to both disabled and non-disabled standards or norms.

Most disabled participants who queried this aspect of the SOC Scale eventually indicated that they would respond according to “disabled” standards, but made it clear that this was a conscious and somewhat uncomfortable choice. These participants seemed to have an awareness of themselves as members of a minority group (see sections 1.5.8 and 3.5), and were uncertain about whether to apply their “own” standards or those of the presumed majority. Given this dilemma, it is interesting to note that the SOC Scale’s internal consistency was nonetheless highest for the residential disabled group.

One residential disabled participant commented that she could not answer item 17 and its revision, item 32, because “only God knows what is going to happen in the future”. Item 17 reads: “Your life in the future will probably be: Full of changes without your knowing what will happen next. / Completely consistent and clear.” Its revision, item 32, is worded: “In the next ten years, you expect that your life will be: Full of changes without your knowing what will happen next. / Completely under your own control.” Another disabled respondent also asked to skip item 17, but gave no reason.

As already discussed at several points in this thesis, Antonovsky (1993) reported a possible problem with items 17 and 10 (see 3.4.1 and 4.4.1). The results of the current study confirmed that both of these items

performed poorly in terms of reliability and validity (see 5.10, p. 148). In addition, these items consistently achieved very low mean scores across all subgroups, with the exception of item 17 for the disabled college group.

#### *Perceived Stress Scale*

Unprompted comments made by several disabled participants in the traditional residential home indicated that some PSS items (e.g. items 4, 5, 8, 9 and 14) were felt to be ambiguous or inappropriate. These participants did not perceive themselves as facing daily hassles or major life changes, and some commented that the home is a protected environment. One respondent explained that since she did not perceive herself as having any real stress, she could not state that she felt she was “coping well”.

For example, item 4 reads: “In the last month, how often have you dealt successfully with irritating life hassles?”. The response “Never” could mean “No hassles have confronted me”, or it could mean “There have been hassles, but I have not been able to deal with them successfully” (see Appendix B for the PSS).

The researcher thanked these respondents for pointing out the problem, and assured them that it would be mentioned in the final research report. So as not to influence the responses, she then simply encouraged the participants to respond in whatever manner they felt was most appropriate.

Although the PSS has demonstrated good reliability and validity for westernised groups, this is apparently not the case for African samples. Thekiso’s (1999) study reports that the PSS was unsuitable for use with a large Tswana sample in South Africa. The current research suggests that the PSS was also unsuitable for use with the disabled college sample (Cronbach’s  $\alpha$  was notably low; see 5.4.2). The choice of this particular questionnaire as a criterion measure in the current research may thus have

been less than ideal. However, the PSS was selected for its brevity, and because it had already been used in a validation study of the SOC Scale by Frenz, Carey, and Jorgensen (1993). Thekiso's research came to the researcher's attention only once the data-gathering was underway.

### **7.2.2 Limitations of a quantitative methodology**

This research report has so far highlighted some weaknesses in the SOC Scale's reliability and validity when the scale was used with the current South African samples. Because a quantitative methodology was used, it was not possible fully to explore issues that may have negatively impacted on the scale's psychometric properties. For example, it has been shown that cultural, educational and socio-economic factors are likely to have influenced the SOC Scale's validity and reliability. In the case of the college group, these influences may have been compounded by participants' disabilities.

Specifically, problems were noted with the internal consistency of the comprehensibility subscale (college group) and the manageability subscale (all sample subgroups). The validity of the manageability subscale was also questionable, since factor analysis indicated that few items were loading on the manageability factor.

Exploring the possible confounds, and conducting a thorough investigations into the construct validity of SOC and its components, as well as into the content validity of the subscales, would require additional research. This research could perhaps assume a qualitative nature, and might probe people's concepts about personality resilience, comprehensibility, manageability and so on. Interviews and panel discussions with people from traditional African cultures may help psychologists to understand how these cultures have traditionally viewed or defined personal resilience, and whether indeed they even particularly value this concept. Similarly, interviews with disabled people may highlight new ideas about the relationship between disability and resilience (with or without an emphasis on differing cultural interpretations and beliefs about disability).

Had it been possible in the current research to include both a qualitative and a quantitative approach, greater insight may have been gained into the reasons why the college group's results were consistently and substantially different from those of the other disabled subgroups. Qualitative data may also have made it possible to identify new items to include in a subscale designed to tap comprehensibility as it was experienced by this particular group. It is possible that the experience or sense of comprehensibility differs qualitatively for various groups, and if so it would be useful to have a choice of subscales or items to suit each particular context.

The content validity of new questionnaire items should, ideally, also be subjected to the opinions and judgements of experts in the field (Ghiselli, Campbell, & Zedeck, 1981). This step was not taken in the current research. Should the suggested modified items be used in other SOC studies, it is recommended that, if possible, the new items should be subjected to such review.

The researcher's impression was that disabled participants generally enjoyed filling in the SOC Scale, which supports Antonovsky's (1987) claim in this regard. During data collection at the college there were various comments such as "Whoever thought up these questions really knew what they were doing!" or "Please could I have a copy of this to take home?" One entire class all requested copies of the SOC Scale.

It was also felt that an invitation to take part in a qualitative study regarding personal resilience would have been well received at all sites for disabled participants. One person at a residential site, in fact, declined to fill in the SOC Scale, saying that had he been asked for a personal interview instead, he would have participated. He indicated that the nature of his experience with his accident and resultant quadriplegia had been such that he did not feel it could be adequately reflected in a questionnaire with pre-determined responses.

Quantitative research is limited by the way in which subjective experience is quantified. Steptoe (1991, p. 205) writes that “Much of the research linking stress with mental or self-reported physical health is plagued by problems of measurement contamination, leading to the identification of spurious associations between life stress and well-being”. Dohrenwend, Krasnoff, Askenasy, and Dohrenwend (1978) point out that there is always “noise” or error associated with subjective judgements. McDowell and Newell (1996, p. 26) state that “Most health indices do not disentangle the subjective and objective components in the measurement and thereby tacitly assume that the admixture of subjective and objective data is inevitable”.

The solution which Steptoe (1991, p. 205) proposes to this dilemma is the use of “physiological markers [that] provide objective evidence for the impact of stress and individual differences”. Thus Steptoe implies that even survey-type or ordinal data (see 1.5.4 for definitions thereof) are too subjective to provide accurate measurement. However, for the current research and for numerous similar studies, this is the only form of measurement that is possible.

### **7.2.3 Adequacy of the sample**

Section 4.2.3 (Chapter 4) describes the samples used in the current research and indicates that these were convenience samples, accessed within South African contexts. Because of this, they may not be representative of the populations under study (McCall, 1990; Rosenthal & Rosnow, 1991). Readers should therefore approach the current findings and conclusions with caution. In addition, the non-random and cross-sectional nature of the current data suggest that the interpretation of results should be limited to the groups examined at the time of this research (*ibid.*).

To reduce confounding variables in the disabled sample, people with head injuries were not invited to participate. However, in some cases with participants who were included in the research, it was possible that brain functioning may have been affected by a disease process, or by long-term institutionalisation. People



with severe speech impediments, and who also had reading or writing impediments which precluded their filling in the questionnaires unassisted, were also not invited to participate, as it would have taken the researcher too long to learn to communicate with each such individual well enough to administer the questionnaire.

Sample sizes for the residential disabled groups (traditional institution and self-help centres) were small. The results for these two subgroups should be interpreted with particular caution because of this. Small sample sizes are known to yield statistical results that are less widely generalisable to other groups (Kerlinger, 1986; McCall, 1990; Rosenthal & Rosnow, 1991).

#### **7.2.4 Adequacy of the data collection and analysis**

Section 5.2.2 in Chapter 5 describes the data collection process. For the residential disabled sample, the SOC Scale was left at some sites for up to two weeks. This means that participants had the opportunity to refer to the questionnaires more than once, thus introducing the possibility of a type of pre-test sensitization. Similarly, they could have altered their responses to items during that time. However, given that the research did not include a pre-test post-test design, this was not regarded as a serious problem.

In terms of data analysis, Owen (1992) suggests comparing the factor analyses of different groups either via a coefficient of congruence, or through confirmatory factor analysis and path analysis. These techniques would have enabled a more rigorous assessment of the SOC Scale's validity. These calculations were not performed, partly because the subgroups were too small to conduct factor analyses on them separately (see 4.3.3). Predictive validity was also not empirically assessed; this would have entailed statistical comparisons of the correlation indices of SOC and PSS scores, across the subgroups. Statistical estimates of test bias and estimates of item bias (Owen, 1992) were also not calculated.

The design of the current research was cross-sectional, which means that the data were gathered at one specific point in time only. No pre- and post-event testing was used, and nor were longitudinal processes evaluated. Cross-sectional studies suffer from a temporal limitation, and in the case of SOC research, where it is possible that the construct under investigation may fluctuate over time or in response to external life circumstances, this limitation should be kept in mind (Rosenthal & Rosnow, 1991). Lazarus and Folkman (1984) state that coping ability and SOC should be seen as processes that are in flux, and that static measurements are likely to provide limited or even distorted information.

## 7.3 IMPLICATIONS OF THE RESEARCH

### 7.3.1 General implications of SOC theory

Section 3.3.9 in Chapter 3 suggests several reasons for assessing the strength of SOC. A further potential benefit of assessing SOC may be to encourage people with a strong SOC to use their personal qualities for the benefit of other people more readily. The researchers attempted to adopt this approach in the Cilliers (2001) study, but they found that strong-SOC individuals were unwilling to share their presumed position of strength. This finding is reminiscent of Antonovsky's (1991, p. 97) comment:

There are many people who I see as lovely, but have a weak SOC; others, with a strong SOC, I cannot stand. Health is but one value, and not necessarily the supreme one. The structural realities which promote salutogenic strengths for some may well not be identical with, and may even contradict, the realities which foster such values as equality, compassion, solidarity and freedom.

It stands to reason that individuals who are the most concerned with mobilising coping resources for their own benefit, and who are the most confident and skilled at doing so, are likely to be both those with a strong SOC and also those who are most competitive. In situations where there is a shortage of material resources, it is possible that such individuals would secure their own well-being at the expense of others. Such behaviour may be socially acceptable in Western societies, but in

collective societies it may imply a breakdown of the traditional norms of interdependency and co-operation (see 2.4.2).

For example, Nsamenang (1999, p. 30) cites the maxim “Seek the good of the community and you seek your own good. Seek your own good, and you seek your own destruction”. As cited in Chapter 2 of this thesis (see 2.1), Teffo (in Clasquin, 1999, p. 160) states that for Africans, “What is discouraged is the view that the individual should take precedence over the community.” Thus, linked to cultural factors, there may perhaps be an “ethical” dimension to SOC which could be better understood.

It is possible, for example, that the meaningfulness component covers co-operative, self-sacrificing and altruistic qualities, while the manageability component covers more competitive and self-preserving qualities. It would be interesting to see how these two apparently contradictory outlooks might fit together, and whether strong SOC reflects a balance between them, or more simply self-preservation.

In an unusual study on the nature of illusion, Taylor and Brown (1988) report that optimists are high in subjective well-being. Optimists were defined as those who believe they enjoy better fortune than others, have positive expectations for their future, and compare themselves favourably with others. According to this definition, Taylor and Brown (*ibid.*) classified the majority of their research respondents as optimists. The authors concluded that optimism, and its related sense of self-confidence, is unfounded. In their view, optimism represents an illusion, since in statistical terms “not everyone’s future can be rosier than their peers” (*ibid.*, p. 197). Taylor and Brown (1988) comment that, in contrast to the accepted belief that it is depressed people who cognitively distort reality (in a negative or hopeless direction), it may actually be optimists who do so (but in a positive or pleasant direction).

Strong-SOC individuals may similarly be capable of “distorting” reality. Perhaps a better way of phrasing this would be to say that people with a strong SOC may habitually pay more attention to events or ideas which confirm and strengthen their SOC, while ignoring or downplaying contradictory information. This tendency may underlie their ability to maintain their belief sets and positive outlook on life, thereby also maintaining the motivational levels and behaviours that typically accompany a strong SOC (Antonovsky, 1987). The possibility of a cognitively-based strategy such as this underlying SOC may be an avenue for further research. However, it should be noted that several prominent researchers (e.g. Lazarus and Folkman, 1984; Strümpfer, 2004, and via personal email communication, 2005) do not believe that cognitive processes should be viewed as taking precedence over emotional ones.

Another topic of possible interest to future researchers interested in SOC is that of the “deviant case” suggested by Antonovsky (1987). While he used this term mostly to refer to at-risk individuals who did not get sick, it could also refer to those with a strong SOC who do suffer health breakdown. As mentioned in 3.3.4 (Chapter 3), Antonovsky (1987) reported that one of his earlier studies had found that 12% of weak-SOC individuals were in the best possible health, while 7% of the strong-SOC subjects were in the poorest possible health. These percentages are, perhaps, actually large enough not to be considered merely deviant cases. Even if they are viewed as exceptional, Antonovsky’s emphasis on deviant cases suggests that such cases are valuable sources of information and insight (also Strümpfer, 1990). Either way, “deviant cases” warrant further consideration.

### **7.3.2 Specific South African concerns**

The Preamble to the policy document of the Health Professions Council of South Africa regarding the classification of psychometric instruments (HPCSA, 2002, p. 1) states the following:

... few tests are available that have been designed and standardised for all South Africans... the practice has arisen of using tests developed for a White, westernised population with other cultural groups and “applying the norms with caution”. As very few empirical studies have been undertaken into test bias, testers are left

with very little empirical certainty about the validity and cultural appropriateness of the measures that they use.

The Preamble adds that, in accordance with the Employment Equity Act, all psychometric instruments which are used to test employees must have been scientifically shown to be valid and reliable, must be fair to all employees, and must not be biased against any person or group. The Preamble concludes that “it would be unwise for psychologists not to address the development and adaptation of culturally appropriate measures as a matter of great urgency” (ibid., p. 1). The current validation study, which used multi-cultural samples, has attempted to address this concern regarding the SOC Scale.

Given that disability issues are also slowly gaining in prominence, a disabled sample was included in the current study so as to assess the psychometric properties of the SOC Scale with this particular minority group.

### **7.3.3 Use of the SOC Scale in South Africa**

The current study has demonstrated that despite some problems with the reliability and validity of the SOC Scale when used with the two selected South African samples, the scale appears to provide a reasonably sound measurement of psychological resilience. This was shown by the inverse relationship between PSS and SOC scores for both the disabled sample and the undergraduate sample, and the fact that mean SOC scores were very much in line with other reported South African scores as well as worldwide scores (see Table 6.1).

Having said this, however, the current research did also find empirical evidence suggesting that the development of a modified SOC Scale for use in South Africa would be a positive step. This may be particularly true when the scale is to be used with groups that resemble the disabled college subgroup which was used in the current study. The SOC Scale performed poorly when used with this subgroup, which comprised black participants of low socio-economic status, who had physical disabilities. Thus, special concern has been noted that the SOC Scale

may not be entirely suited for use with people who are physically disabled, and/or of African (or perhaps more generally non-Western) descent, and/or who are poorly educated in Western terms, and/or who have low socio-economic status. The comprehensibility subscale, in particular, demonstrated inadequate psychometric properties when used with the black disabled group.

Across all of the subgroups in the current study (i.e. college students with disabilities, people with disabilities living in traditional residential care or in self-help centres, and undergraduates), the manageability subscale was the most problematic of the three subscales of the SOC Scale.

In general, the current data yielded relatively low reliability coefficients (see 4.4.1) for the SOC Scale (see 5.4.1 for the results). Mlonzi and Strümpfer (1998) and Thekiso (1999) had similar findings with their predominantly black samples. It is thus recommended that the scale be altered to reflect South African conditions and philosophies more accurately. This recommendation is discussed in greater detail in the following section (see 7.4).

It should be noted that no causal inferences can be made on the basis of the current findings concerning the relationship between SOC and perceived stress. Antonovsky's (1987) theory regards SOC as a moderator of the stress-outcome relationship. In other words, SOC neither causes stress, nor does stress cause SOC. Rather, the perception of stress, as well as the impact of stress, are determined in relation to a set of conditions, one of which is SOC (see 3.3.5). Furthermore, the non-experimental nature of the current study precludes drawing any conclusions about the directionality of the SOC-stress relationship (that is, whether stress affects SOC or SOC affects stress).

Strümpfer maintains that one of the main concerns about using the SOC Scale-29 in South Africa is the relatively high reading level it requires, and the presence of some "Americanisms" (Strümpfer, personal email communication, October 2005; see also 4.4.1). He also suggests the need for a simpler rating scale.

In addition, although Strümpfer reports that he has found the SOC Scale to be the most reliable and valid measure in the area of personality resilience, he believes that the scale's focus is too cognitive. He has therefore "started adding other measures, like measures of positive emotionality and happiness" (Strümpfer, personal email communication, October 2005; see 2.5.5 for a discussion of the salutary effects of positive emotion). The current researcher is inclined to endorse Strümpfer's opinion (e.g. see the discussion regarding item 5, in 6.3.3: "*Factor 3: manageability*", p. 178).

## 7.4 RECOMMENDATIONS FOR FUTURE RESEARCH WITH THE SOC SCALE

### 7.4.1 Overall conclusion and recommendations

The conclusion of this research is that Antonovsky's original SOC scale is generally adequate for use with South African populations. However, it is recommended that South African researchers devise a modified version of the scale for use with local populations. This recommendation is discussed in detail in the following sections.

Furthermore, it is recommended that while a single, global SOC score should continue to be regarded as the most useful measurement of SOC, the development of three valid and reliable subscales for the meaningfulness, comprehensibility and manageability components should be vigorously pursued. In accordance with Antonovsky's (1987) theory, it would make sense to have three distinguishable subscales. The empirical advantages would be that both the subscale scores and the total score could be used with confidence.

The current research has demonstrated that, contrary to the claims of many researchers who state that that a one-factor solution is best for SOC Scale data (see 3.3.1), with a bit of modification the subscales could have sufficiently good

psychometric properties to warrant their further development and refinement (see 5.7.2, 5.7.3, and 5.9). Given that the current study utilised samples whose key characteristics differed considerably from those of Antonovsky's original samples, the fact that it was possible to disentangle the three subscales at all may be regarded as an indication of the essential soundness of the SOC Scale.

In terms of developing a modified version of the SOC Scale, it is strongly recommended that local researchers should focus their efforts into creating one modified scale rather than several. Antonovsky (1993, p. 732) emphasised the importance of this point when he wrote:

...there is no doubt in my mind that in 5 years or so, sufficient evidence will have accumulated to provide the basis for a second generation SOC scale. For the time being, however, I would strongly urge researchers to use the scale as it stands, to allow comparability, rather than for individuals to make this or that change to 'improve' the questionnaire.

Although it is well past the five-year period which Antonovsky anticipated, no "second generation SOC scale" has, as yet, emerged. The current research provides some suggestions and possible starting points for such a scale, with an emphasis on the suitability of the scale for South African populations. Similar efforts have been made by Strümpfer, but unfortunately these have not yet been published (Strümpfer, personal email communication, October 2005). Having one modified version of the SOC Scale for use in South Africa, rather than several versions, would allow for more meaningful interpretation, since it would facilitate the comparison of scores and factor patterns.

It is also recommended that adequate correlations should be ensured between the original measure and any modified versions of the scale, in future research. This would require that, initially, both scales should be administered to each sample group wherever possible.

The main drawback of using a modified scale is that a sizeable pool of normative data has been gathered for Antonovsky's original 29-item scale (see Table 6.1),



and the new scale would yield scores that are not comparable with this data (Antonovsky, 1993; Strümpfer, personal email communication, October 2005). This is potentially a rather serious problem. There are already several modified SOC scales in use worldwide, and there appears to have been little or no standardisation on these (e.g. Cheung, 1994; Ying, Akutsu, Zhang, & Huang, 1997; Nyamathi, 1999).

The purpose for which the SOC Scale is being used should determine whether it would be better to use a modified scale or the original one. If intergroup comparisons are not important, but accuracy in measuring the SOC of each individual within a particular group is, then a modified scale to suit the context may be preferable. If sensitivity and accuracy at the individual level were less important than obtaining a score which could be compared with the SOC scores already reported in other studies, then the use of the original scale would be more appropriate.

A general recommendation is that more research needs to be done using the SOC Scale with population groups that are not westernised or highly educated in the Western sense. These recommendations stem from the concerns regarding the content validity (and perhaps also construct validity) of the scale. Only by gathering more data about the SOC Scale's psychometric qualities with these groups—which might include Asians, Africans, Arabs, Maoris, Latin Americans and so on—would it be possible to determine the extent of the implications which arise from these concerns.

It was also noted in section 6.3.1 that there is a need for further South African research into the relationships between language and education, on the one hand, and SOC on the other. In addition, section 6.3.3. indicated that the results of the current study show that there appears to be some confusion or overlap between the comprehensibility and meaningfulness components. This aspect of the scale could also be more thoroughly researched within South African contexts.

Finally, if more research reports regarding the SOC Scale were to detail the precise results of factor analysis, the impacts of individual items on reliability and so on, this information would assist future researchers in perfecting a modified scale. It is thus recommended that, as far as possible, this type of detail should be provided (cf. Carver, 1989).

In terms of copyright issues, Antonovsky's SOC scale was originally published in 1987 in his book *Unraveling the Mystery of Health*, and the normal copyright restrictions apply regarding the reproduction and use of the scale. Aaron Antonovsky's son, Dr Avishai Antonovsky, as the representative of his late father's estate, along with the original publisher, have granted permission for the SOC Scale to be used for academic and non-profit purposes only (personal email communication, Dr Avishai Antonovsky, December 2005). Dr Avishai Antonovsky has requested that any modifications that are made to the scale should be indicated as such in the relevant research report, and that the rationale for making such changes should be provided.

#### **7.4.2 Rationale for devising a modified SOC Scale**

Owen (1992) discusses "black" intelligence tests that are used in America. These tests include "black" items that deal with "the activities of American blacks in the field of social life, literature and the arts" (ibid., p. 7). Owen states that such tests may improve the IQ scores of blacks by about 27% relative to the scores of whites. It should be noted that the construct of intelligence itself is not called into question by the existence of such alternative tests. Similarly, the concept of SOC should not be seen as being undermined by attempts to develop an alternative SOC Scale.

While the construct of SOC does appear to have global and cross-cultural validity, local versions of the scale could measure the constructs in ways that allow for cultural differences, thus resulting in more accurate and meaningful scores (see 6.3.3 and 7.3.2). Thus, without questioning the construct validity of the SOC Scale, one might nonetheless attempt to improve on its content validity.

Obviously, it is impossible to devise specific SOC tests for all possible populations who might be tested. Nonetheless, the value of developing at least one alternative SOC scale, for use with groups that are not highly westernised, educated and literate, affluent, or homogenous, seems clear.

In addition, prior research has indicated that there are problems with the SOC Scale even when it is used with Western populations. Antonovsky himself (1987, 1993) suggested that modifications to the scale may be necessary, and the current research was undertaken with this suggestion in mind.

As indicated in sections 4.4.1 in Chapter 4 and 6.3.3 in Chapter 6, the possibility of lengthening the meaningfulness subscale should be explored. Two ways of doing so would be, firstly, to have three subscales of unequal weights, but weighted in accordance with the theory; and the second option would be to have three subscales that carry equal weights.

In order for the SOC Scale to achieve congruence with the theory (Antonovsky, 1987), if the three subscales were to be assigned unequal weights then the meaningfulness subscale would be required to carry the most weight, followed by the comprehensibility subscale and lastly by the manageability subscale. This is in contrast to the situation with the original SOC Scale-29, where the meaningfulness subscale carries the least weight.

Having three subscales with unequal weights might seem appealing given the unequal emphasis which Antonovsky (1987) placed on each of the three components. However, he did not quantify the differences between them. For example, although he did state that meaningfulness is the most important SOC component, he did not indicate whether it might be one-and-a-quarter times, one-and-a-half times, or approximately double in importance compared with the comprehensibility component (which he viewed as the second most important component). The relationships between the three SOC components have

apparently never been quantified in this manner, either by Antonovsky or any other researcher or theorist, and it would be challenging to attempt to do so.

Equal weighting for each subscale thus appears to be a simpler and preferable option. The equal weights could be achieved either by including exactly the same number of items in each subscale, or perhaps by using different weights for individual items (see 4.4.1). Item weighting would make the scoring system more complicated, so the development of three subscales with the same number of items in each of them may be preferable. Also, while in theory the idea of item weighting may seem useful, experience has shown that weighting often does not substantially alter the final scores (Choca, Shanley, & Van Denburg, 1992; Retzlaff, 1998; both with reference to the Millon Clinical Multiaxial Inventory).

#### **7.4.3 Recommendations regarding the meaningfulness subscale**

In general, the meaningfulness subscale appeared adequate, and its performance in psychometric terms was the best of the three subscales. However, as already indicated, this subscale is noticeably shorter than the others, which is odd given the theoretical importance which Antonovsky (1987) placed on the meaningfulness component. It is thus recommended that the subscale be lengthened.

Negative loadings on the meaningfulness factor were noted for several items for the disabled college group, in contrast with positive loadings on comprehensibility for the same items, for the other subgroups (see Table 6.2). The disabled college participants therefore experienced these items in a qualitatively different way from the manner in which participants in other subgroups experienced them (see 6.3.3). The reasons for these differences are unclear, and would probably need to be investigated through qualitative rather than quantitative research.

#### **7.4.4 Recommendations regarding the comprehensibility subscale**

In sections 6.3.3 and 6.3.4 in Chapter 6, it was noted that the disabled college group's results on the comprehensibility subscale were particularly problematic. This section provides some speculative ideas about why this was so.

Owen (1992, p. 5) states that "It seems fair to assume that a specific culture stimulates a specific form of cognitive development". Cognitive development relates to comprehensibility in that people from different cultures develop different ways of thinking about, and thus comprehending, the world. Mbiti (1969) states that although Africans traditionally had no formal education system, this does not mean that African children went uneducated. Rather, education traditionally occurred in every sphere of the child's life in family, social and working contexts.

While most people who are asked to complete the SOC Scale are likely to have been exposed to some degree of Western attitudes and education, it is unwise to assume that they have all been westernised to the same or a similar extent. In a country such as South Africa, a great variety exists in terms of the type and level of westernised education which individuals have received. People's internal, cognitive worlds are thus likely to differ according to their various cultural and educational backgrounds. It seems unlikely that any single comprehensibility subscale would be able to measure the construct equally effectively across all different groups.

Owen (1992) also suggests that people from collective cultures tend to be field-dependent; that is, they find it relatively hard to distinguish the salient parts of a situation or problem from the overall context or background, and they approach problems in a global manner. In contrast, people from individualistic cultures tend to be more field-independent, approaching problems in an analytical manner and focusing on the parts rather than on the whole. These two types of cognitive style may have implications for SOC and for the possible development of an alternative comprehensibility subscale.

Section 7.2.2 indicates the limitations of quantitative research. It was suggested that a qualitative approach to the refinement of SOC theory may provide greater insight into possible new items to include in the comprehensibility subscale.

#### **7.4.5 Recommendations regarding the manageability subscale**

It has been shown that the manageability subscale consistently appeared very limited for use with the current South African samples, in terms of both validity and reliability. It was also shown that the original items of the SOC Scale almost exclusively cover the psychological aspects of manageability. Including items that tap perceptions about a broader range of stressors and resources, such as those relating to the financial, physical, physiological or biological, spiritual, or temporal levels, may yield more promising results.

Kosa and Robertson (1975, p. 47) suggest that “Interpersonal relations, divorce, and financial reverses are not exclusively psychological”. There are numerous other stressors—and also GRRs—that are not purely psychological. Thus, the psychometric properties of the manageability subscale might improve if the more tangible aspects of manageability were to be overtly tapped.

For example, item 27 reads “When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that: You will always succeed in overcoming the difficulties. / You won’t succeed in overcoming the difficulties”. This item reflects a generalised approach to manageability, as it does not allow respondents to distinguish between different spheres of their lives. It is possible to phrase manageability items in a far more specific way. For example, asking “Do you have enough money each month to buy food?” would engage respondents’ perceptions about their material resources, whereas asking “Do you ever feel that your body is not strong enough to do the things you need to do every day?” would tap their perceptions about their physiological resources. Perceptions about time resources could similarly be assessed. It should be remembered, however, that items need to be simply worded.

For South African populations, items similar to some of those found in Bluen and Odesnik's "Township Life Events Scale" (TLES) may be of relevance (e.g. Have you ever not had enough money to pay your rent; / had problems finding a place to live; / had problems with water, electricity, sewerage facilities; / had problems [with transport]; / not had enough money to buy food to feed your family; / [you or your children] been exposed to inferior or inadequate educational facilities.) (Bluen & Odesnik, 1988, p. 53-54).

Items measuring the perception of spiritual resources may also be important to include in the SOC Scale, although it is not clear whether these would contribute to a meaningfulness, manageability or comprehensibility subscale, or all three. Section 7.2.1 above mentions the refusal of one participant in the current study to answer questions about the future because "only God knows". According to Antonovsky (1987,1993) religion is merely one of many possible routes to a strong SOC; in addition, he made it clear that he himself was not religious (Antonovsky, 1991, p. 97). However, while the Western world may favour a distinction between secular and spiritual psychologies, in other cultures this very split may be seen as undesirable or alien (see 2.3 and 2.4). Antonovsky did not include any items that are directly relevant to one's sense of spirituality, though for people in some contexts this sense might be crucial in determining an overall sense of coherence about life.

South African researchers Edwards and Besseling (2001, p. 69) found a correlation between SOC and religious involvement, but were unable to conclude "whether it is religious involvement that raises SOC, or whether individuals with high SOC draw on religious involvement as a generalised resistance resource." They add that it is possible that "the two potentiate each other" (ibid., p. 69), and suggest that both high SOC and religious involvement may contribute to a "positive cognitive set". Strümpfer, in a separate study, found no correlation between SOC and religious motivation (cited in Edwards & Besseling, 2001). Nonetheless, he has considered developing an "anticipated spiritual support" scale

for use within an SOC context (Strümpfer, personal email communication, October 2005).

Strümpfer has furthermore investigated the possibility that the manageability subscale should be replaced with a “self-efficacy” scale and an “anticipated social support” scale. He suggests that “resources under [one’s] own control and resources under control of others are quite different things and should not be conflated... there is some research on related constructs that has shown them to have different correlates” (Strümpfer, personal email communication, October 2005).

The current researcher gained insight into the above-mentioned possibilities for more specific manageability items only towards the end of the research, partly as a result of data analysis. There was thus no opportunity to test such items empirically. Future researchers might find this a worthwhile area of investigation. Issues around manageability may be all the more pressing with groups known to have limited material resources, as is the case for the majority of South Africa’s population as well as for many disabled people. For these groups, manageability may perhaps be a more salient life issue than it is for wealthier respondents in industrialised nations, or for non-disabled people.

It even seems possible that a lack of access to material resources may encourage the development of greater personal resources in other areas, such as a stronger sense of spirituality, a stronger sense of humour, or greater reliance on other belief systems which are felt to be meaningful. If so, a different pattern of empirical results would emerge for such groups, and it may not necessarily be true that a lower SOC in one sphere of life would be associated with a lower SOC in all other spheres, as Antonovsky (1987) claimed (see 4.4.3). One may thus, for example, score poorly on the manageability subscale, but highly on the meaningfulness or comprehensibility dimension. It is conceivable that this irregular type of pattern may account, at least in part, for the seemingly anomalous results of the disabled college group in the current research (see Tables 5.5 and 6.2).



#### **7.4.6 Research regarding causality**

Edwards and Besseling's research into the relationship between SOC and religion (see previous page) illustrates a conceptual problem concerning the direction of causality. Many aspects of SOC theory face the same problem. For example, Antonovsky (1987) suggests that people born into a higher socio-economic class tend to develop a stronger SOC. However, it stands to reason that if one is able to develop a strong SOC regardless of the socio-economic class one is born into, this may in turn facilitate one's ability to deal successfully with financial needs (cf. Strümpfer's 1995 discussion about fortigenesis).

One could also ask whether having a strong SOC results in good time management, thereby allowing one to maximise one's temporal resources, or conversely whether learning time management skills may enhance one's SOC. Similarly, do physiological resources and high levels of stamina increase SOC, or does SOC increase these physiological resources?

Section 2.2.4 in Chapter 2 refers to a similar debate about the possible causal relationship between SOC and a sense of meaning.

It may be that SOC co-varies with each particular resource, rather than causing it or being caused by it—in Edwards and Besseling's words, that the two “potentiate each other”. This uncertainty regarding causality applies at a conceptual level to the entire SOC scale, and the inclusion of new items in the scale is unlikely either to resolve or to exacerbate the dilemma. It is impossible to determine the direction of causality merely on the basis of SOC or subscale scores. Even when comparative indices (e.g. PSS scores or various health scores) are used in conjunction with SOC scores, the problem still exists, since a degree of correlation may be established but no causative inferences may be made on that basis. However, the dilemma is a conceptual one, whereas the empirical SOC scores themselves are still useful.

Empirical research regarding the above questions may be worth pursuing. One might, for example, test SOC before and after a fitness programme (which may increase one's sense of physiological resources), or before and after time-management training, and so on.

#### **7.4.7 Ethical aspects of SOC research**

Finally, as indicated in 7.3.1 above, there are ethical considerations regarding SOC theory and research. While probably not an avenue for actual research, it is important for researchers to remain cognisant of the broader impact which research using the SOC Scale may have. Ethical considerations apply at the individual level whenever people are assessed for SOC strength, especially when this assessment takes place in a "cross-cultural" context. However, ethical researchers and clinicians also need to consider the possible impact of those values which are implicitly endorsed by the concept of SOC.

The purpose of measuring SOC remains of paramount importance. Not only would this purpose help to determine the scale's validity in diverse contexts (see 6.3.3), but it would also determine whether SOC research is likely to benefit, harm, or have no direct effect on the people it studies. For example, efforts to raise SOC clinically should not simply entrench values that may be associated with westernisation, urbanisation, financial affluence or high social status, such as individualism, competitiveness, internal locus of control, or typically westernised worldviews (see 3.4; also cf. Antonovsky, 1980). Similarly, assessment in the workplace for the sake of identifying more or less resilient personalities should not, respectively, advance or jeopardise those individuals' careers.

It seems that what is required, at the least, is for each SOC researcher briefly to locate his or her work within the broader social context. From this vantage point, an articulation of the underlying purpose of the work should become both possible and informative to others.