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A Critical Appraisal of Previous Research**

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Can Sense of Coherence Be Modified by Religious/Spiritual Interventions?: A Critical Appraisal of Previous Research

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Abstract

In an interdisciplinary review of twenty-one German- and English-language intervention studies, the effectiveness of spiritually/religiously based interventions is evaluated statistically by measuring the participants' sense of coherence (SOC). Although Aaron Antonovsky considered a change in the SOC-29 score of no more than ± 5 points possible, the intentional modification of the SOC-29 median through religious/spiritual interventions ranges from 3.5 to 21 points. In studies using the SOC-13 questionnaire, the SOC increase ranges from about 2 to 7.5 points. Although it is possible that, for example, small sample sizes and biographical factors skew the statistics, the fact that the experimental groups' SOC score was in all cases higher than the control groups' SOC score strongly suggests that the improvement in SOC can be traced to the religious/spiritual practices. However, there seem to be no difference between the efficacy of spiritually/religiously based interventions and that of secular interventions. Moreover, some studies indicate that an intentionally modified SOC might not be stable over time. After reconsidering why I decided to categorize therapeutic programs such as Mindfulness-Based Stress Reduction (MBSR) as religiously/spiritually based interventions, I propose and criticize an ad hoc model of the SOC-enhancing effect of MBSR. I then discuss the potentials and shortcomings of this segment of research and develop perspectives for methodologically more sophisticated investigations.

The so-called religion-health connection (Ellison and Levin 1998) is an interdisciplinary research field par excellence. However, many scholars of religion are not aware of the dynamic development and rapid growth of this still young subdiscipline. In 1987, Levin and Schiller reviewed over 200 studies in the field of empirical religion and health research. In the preface of the second edition of the *Handbook of Religion and Health*, Levin (2012: xiii–xiv) states that the number of published studies on this topic—somewhere between 3,000 and 11,000—has become almost unmanageable. A few years earlier, this magnitude had tempted Levin (2009: 125) to formulate the following diagnosis: “After years of marginality, research on religion and health is entering the academic mainstream.”

Meta-analysis of the extensive body of research indeed suggests that there seems to be a slight positive correlation between intrinsic religiosity/spirituality and mental health (e.g., Ano and Vasconcelles 2005; Bergin 1983; Donahue 1985; Hackney and Sanders 2003). But the questions as to whether this correlation is causal in nature and which dimensions of religion/spirituality have an effect on which aspects of health and illness are still largely unanswered (Hill and Pargament 2003). To facilitate well-planned research in this complex scholarly field, at least three qualifications have to be fulfilled: (1) a reflection of the concepts of religion/spirituality and health/illness that are used; (2) a critical assessment of the instruments that are utilized to measure the religious/spiritual and health/illness variables; (3) the development of instructive models that explain the mechanisms and possible association structures between religion/spirituality and health/illness. For years, however, scholars have complained about the lack of conceptual models guiding the field (e.g., Ellison and Levin 1998; George, Ellison, and Larson 2000; Hackney and Sanders 2003; Thoresen and Harris 2002). In the German-speaking research community, Klein and Albani (2011) recently provided an excellent overview of important findings, explaining the nexus between religion/spirituality and mental health/illness and recombining them into a multidisciplinary model of pathways. In doing so, they also pointed to a prominent health theory—namely, the model of salutogenesis launched by medical sociologist Aaron Antonovsky (1979, 1987)—that had been discovered by sociologist of religion Ellen L. Idler early in the systematic exploration of the connections between religion/spirituality and health/illness. Idler (1985, 1987, 1994), inspired by Antonovsky’s first book *Health, Stress, and Coping* (1979), formulated the so-called sense of coherence hypothesis, which is as follows: “[R]eligion as a system of symbols provides cultural resources in the form of a consistent body of knowledge and set of meanings that allows individuals to make sense and cope with their experience” (Idler 1994: 18). During the ensuing period, other authors tried to position the research on religion/spirituality and health/illness in the context of Antonovsky’s salutogenic theory of stress and coping (e.g., Ellison 1991;

George et al. 2000; George, Ellison, and Larson 2002; Levin 1996, 2003, 2007; Namini and Murken 2009).

In this article, I will review a small segment of research that is part of the wider discourse of theorizing about the connection between religion/spirituality and health/illness in terms of salutogenesis. This research segment comprises twenty-one German and English-language intervention studies in which the effectiveness of spiritually/religiously based interventions is evaluated statistically by measuring the participants' sense of coherence (SOC). I will begin by sketching the rationales of salutogenesis and by discussing in more detail two theoretical aspects that are relevant for the appraisal of the studies at hand: SOC as an outcome parameter and the changeability of SOC over time. After reviewing the results of the religiously/spiritually based intervention studies, I will discuss potentials and shortcomings of this segment of research and develop some perspectives for future investigation.

SALUTOGENESIS AND SENSE OF COHERENCE

Antonovsky (1985, 1987) called health a mystery. For him, as for the German philosopher Hans-Georg Gadamer (1996), it is not the phenomenon of illness that needs explanation, but the enigma of health. Antonovsky defined health not as the complete absence of disease, that is, as a utopian static condition, but rather as the culturally learned ability of people to cope successfully with ubiquitous stressors—metaphorically speaking, as the ability to swim in the torrential river of life (Antonovsky 1987). With his model of salutogenesis, Antonovsky tried to explain how it is possible that some people, despite the most adverse circumstances and extreme levels of stress, manage to stay healthy or, to put it more precisely, how they succeed in moving toward the healthy pole of the ease-disease continuum. This procedural understanding of health, which does not negate but acknowledges the omnipresence of stressors and germs, represents the basic idea of the salutogenic model, a model that supplements the common pathogenetic perspective in epidemiology and medicine: the search for disease-causing factors and preventive strategies. In the constant attempt to stay healthy, people mobilize so-called generalized resistance resources and/or compensate generalized resistance deficits. They use ways and means acquired through experiences of consistency, experiences of participation in the social environment, and experiences of mastery of earlier stress situations. However, health does not only depend on the amount and intensity of stressors and the number of acquired resources. If this were the case, the salutogenic model would boil down to a simple health formula; provided that one knows the variables involved, one could solve the enigma of health by addition and subtraction. Instead, Antonovsky believed, a sense emerges over the course of approximately the first thirty years of life, a “feeling” for which events

are to be defined as stressful (or not) and which challenges can be countered effectively by which resources or coping strategies. This competence or sense solidifies in adulthood and thereafter represents a relatively stable life orientation that regulates various appraisal and feedback processes. For this all-important meta-resource, Antonovsky coined the term *sense of coherence (SOC)* and defined it as follows:

The sense of coherence is a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable, (2) the resources are available to one to meet the demands posed by these stimuli, and (3) these demands are challenges, worthy of investment and engagement (1987: 19).

To test the usefulness of his salutogenic theory, Antonovsky developed a questionnaire measuring the strength of people's SOC. The original version of the instrument consists of twenty-nine items (the SOC-29 questionnaire) and comprises three components: (1) comprehensibility, (2) manageability, and (3) meaningfulness. Later, Antonovsky designed a short version of the measuring instrument (the SOC-13 questionnaire). The questionnaire was translated into many languages and has been used in a now barely manageable wealth of studies (see Eriksson and Lindström 2005). A systematic review of the SOC literature shows that the SOC is strongly correlated with measures for perceived mental health (Eriksson and Lindström 2006). The influence of the SOC on indicators of physical health, however, seems to be weaker than was initially assumed (see Flensburg-Madsen, Ventegodt, and Merrick 2005).

SOC as Outcome Parameter

At first glance, the SOC questionnaire does not seem to be a suitable tool for measuring the effectiveness of health-promoting interventions (see Geyer 2006). This was the critical position of Antonovsky himself. In his first monograph, *Health, Stress, and Coping*, he posited that the SOC is consolidated in adulthood and therefore is largely resistant to change. He called utopian the expectation that the SOC could be modified, for example, through psychotherapeutic intervention (Antonovsky 1979). In his second book on salutogenesis, however, Antonovsky modified his position: "What is now clear to me, as it was not in 1978, is that in formulating the stability hypothesis, I had in mind the person with a strong SOC" (Antonovsky 1987: 120). He considered it likely that people with a moderate or

low SOC tend to move to an even lower level of SOC over time.¹ This assumption is associated with Antonovsky's SOC typology, which is built on postulated relationships among the three SOC components: comprehensibility, manageability, and meaningfulness. Meaningfulness, which he called the motivational component, tips the scales in the dynamics of the SOC; in other words, the SOC of individuals who feel a high level of meaningfulness in their lives has a tendency to stabilize or increase (Antonovsky 1987). Nevertheless, these statements about the modifiability of the SOC remained restrained. The creator of the SOC construct had theoretical reasons for this: The SOC is designed as "a stable, enduring, and generalized orientation to one's world" (Antonovsky 1987: 182). As a worldview or a cross-situational orientation to life, the SOC is determined by genetic factors and influenced by the historical and cultural circumstances in which the person grows up and is socialized. In other words, the SOC formation is more of an involuntary process of enculturation than an individual psychological development process that could be controlled by a supposedly self-sufficient person (Antonovsky 1987). This goes along with the presumption that a construct that is socioculturally and biographically shaped, such as the SOC, cannot be changed significantly and in a lasting way in just a few weeks. The SOC of adults, Antonovsky claimed, depends on such a deeply rooted outlook on the world that changes in the level of the SOC score would have to be understood as only temporary fluctuations around a mean. Citing the salutogenic design of patient-physician communication as an example, he considered a temporary change of the SOC mean value by ± 5 points as realistic (Antonovsky 1987; see also Sack and Lamprecht 1997). This suggests that Antonovsky attributed the fluctuation of the SOC to therapeutic intervention.² However, after such intervention, one will "soon bounce back to one's 'normal' level" (1987: 184). Antonovsky considered a profound and long-lasting change of SOC possible only if (1) the immediate social context of life is reorganized permanently and/or (2) a serious negative/positive event shatters the previous life orientation and alters the livelihood

¹ Indirectly, this hypothesis also suggests that the success of an intervention depends on the level of the participants' SOC score before the intervention has started: The stronger a person's SOC, the higher the probability that the SOC will increase during an intervention. People who initially have a weak SOC could be confused by the program, which may diminish the success of a treatment or even lead to a short-term decline of the SOC (for an allusion to this little-noticed problem, see Berg and Hallberg 1999).

² That Antonovsky, a medical sociologist, did not focus on the medical treatment as such, but emphasized the health benefits of positively framed doctor-patient communications in the medical field (see also Shuval, Antonovsky, and Davies 1967, 1970) is consistent with the general tenor of his salutogenic theory (for the centrality of interpersonal trust in Antonovsky's thinking, see Jeserich 2012). Not surprisingly, subsequent research has developed principles of a salutogenic communication culture (Bahrs et al. 2003; Borkan, Miller, and Reis 1992; Hellström 1998; Holinagel and Malterud 1995; Maoz, Hadar, and Asher 2011; Petzold 2005, 2011, 2012; Petzold and Lehmann 2009, 2011).

drastically. According to salutogenic theory, intentional modifications of the SOC endure only if not merely the personality of the individual is the focus of the intervention, but also the SOC-determining social environment of the person or group (see also Arnold 2007; Bengel, Strittmatter, and Willmann 2001; for examples, see Antonovsky 1987; Udris and Rimann 2006).³ Thus the revised stability hypothesis says that lasting changes of SOC rarely occur and that they take place only when the transformed inner and outer circumstances afford a new pattern of life experiences.

The close connection between cultural context, biography, and SOC explains why the construct, according to theory, responds insensitively to small personal or social changes or shorter therapeutic interventions. A life orientation that has developed and matured over decades is difficult to influence. From another perspective, it is precisely because of its alleged stability that the SOC is a reasonable outcome measure for intervention studies. For example, Jon Kabat-Zinn, the creator of the now famous and internationally researched Mindfulness-Based Stress Reduction (MBSR) program, argues that an increase of the SOC score shows—in contrast to other, perhaps more sensitive, measurement instruments—that the change achieved by the intervention is not merely a superficial and short-lived phenomenon but rather leads to a profound change in personality structure (Dobkin 2008; Kabat-Zinn 1996). An SOC modification, even if it may be considered rather small, can be interpreted as a valid indication of the depth of the intervention: “On a deeper level something was changed by the practice of mindfulness—it shifted those psychic personality characteristics that are very difficult to change in adults. These properties include the sense of coherence of a person. . . . After eight weeks of mindfulness practice the patients’ feeling of coherence rose seven . . . percentage points. Psychologically, these internal structure changes are enormous” (Gruber 2001: 39).⁴ Especially with regard to religious/spiritual interventions, this argument is notable because it is frequently assumed that religions or spiritualities are associated with enculturated worldviews and touch deeper layers of the human condition.

³ This important theoretical principle is often overlooked in discourses on the SOC concept and in applications of salutogenic ideas in clinical or therapeutic settings. The tendency to misunderstand the SOC as a solely individual psychological parameter often brings forth misleading statements about Antonovsky’s model. Schnoor (2006: 52), for example, maintains: “The support of the SOC has a close proximity to psychotherapy, for psychotherapies seek the activation, exposure and support of *individual* resources, too” (translation by Florian Jeserich; italics added). Antonovsky stressed, however, that interpersonal and transpersonal resources are more important for the development of a firm SOC than are intrapersonal resources, since every individual is sometimes unable to cope with a stressful situation on his or her own.

⁴ Translation by Florian Jeserich.

Changeability of SOC over Time

Toward the end of the 1990s, Geyer (1997) complained that Antonovsky's stability hypothesis was still empirically untested; later, Faltermaier (2006) was also critical of the state of research. A number of longitudinal and intervention studies have now been carried out in which the relative stability or intentional modifiability of SOC was systematically investigated, for example, in the psychotherapy studies of the Swedish psychiatrist Sandell and his colleagues (Lazar, Sandell, and Grant 2006; Sandell 2005; Sandell, Blomberg, and Lazar 2002). Because I could find no longitudinal study in which the variable religiosity/spirituality was included in the study design, I cannot analyze this group of studies in more detail. However, for assessing the results of the intervention studies referred to here, it is important to know whether the SOC value remains relatively constant or changes over time to a greater degree.

Since there should be empirical studies that have found that the SOC varies widely and is thus much more dynamic than assumed by Antonovsky, any SOC changes that could be interpreted offhand as a result of a religious/spiritual intervention must be considered significant in that light; therefore I look at these results at least briefly. The usually very high test-retest reliability of the SOC construct suggests that the SOC scores are not changing dramatically within a short time period. Depending on the evaluated literature, the reliabilities range from 0.42 to 0.93 (Eriksson and Lindström 2005) and from 0.67 to 0.82 (Feldt, Leskinen, and Kinnunen 2005; Feldt, Lintula, et al. 2007, Feldt, Metsäpelto, et al. 2007). The highest value (0.93) was measured by Frenz, Carey, and Jorgensen (1993) and is related to a period of one month, and the lowest value (0.42) was reported by Smith, Bretlin, and Beaton (2003) in their four-year longitudinal study of a Canadian population. Although there are studies that confirm Antonovsky's stability postulate (see, e.g., Feldt et al. 2000; Langius and Björvell 2001; Schiepe 2008), it is becoming apparent that the SOC fluctuates over the years. On the basis of the available empirical studies, it is difficult to say conclusively how much the SOC changes over time and whether it rises or falls. Therefore it also remains largely unclear whether the further development of the SOC—after its alleged hardening at about 30 years of age—is de facto primarily dependent on the level of the SOC component meaningfulness.⁵

Symptomatic of the controversial relationship between age and SOC are the methodologically sophisticated longitudinal studies of Finnish psychologist Taru Feldt and her colleagues. In 2000, Feldt and her research team asserted that the SOC, measured in a period of one year, is a relatively stable personality factor

⁵ For this contested hypothesis, see Antonovsky (1987). The observations of Sack and Lamprecht (1997), for example, seem to refute the supposition, while the study by Carstens and Spangenberg (1997) shows it to be true.

(see Feldt et al. 2000). Three years later, however, Feldt and her colleagues cast doubt on their own position. Their new longitudinal study, which was scheduled to run for five years, showed that the SOC mean of the older age group (>35 years) is not more stable than the SOC mean of the younger age group (<30 years). They concluded that the SOC of adults is not a stable trait, but rather a dynamic life orientation that can be influenced by the environment (Feldt et al. 2003). Moreover, factors such as socioeconomic status may play an important role in the SOC dynamics (Feldt, Leskinen, and Kinnunen 2005; Geyer 1997; Ing and Reutter 2003). But there is not only a contradiction between Feldt and colleagues' studies of 2000 and 2003, but also an antithesis between two of their more recent studies: In 2007, they confirmed the suspicion that the SOC does not remain stable but increases steadily over a five-year period (Feldt, Lintula, et al. 2007). But in 2011, Feldt and colleagues specified that the SOC of people who already have a high SOC value tends to rise further, independently of age. The latter result is consistent with the thinking of Antonovsky (1987), but it contradicts their own former study, in which they found that the SOC increases with increasing age (see also Eriksson and Lindström 2005). That contradictory results have been produced by the same research group within a decade illustrate how difficult it is to answer the question of the variability of SOC empirically. It is still unclear what internal and/or external circumstances determine the stability, rise, or fall of the SOC over years.

Although they support the stability postulate, the Swiss psychiatrist Ulrich Schnyder and his colleagues have tried to propose a middle ground between the positions: "Antonovsky's SOC can probably be seen as a relatively stable (*trait*) measure, showing some degree of (*state*) variability when a person is faced with a drastic life event" (Schnyder et al. 2000: 301).

If one holds the position that the SOC is a perspective on the world that is relatively resistant to change, even minor variations in the SOC score constitute a remarkable achievement. Thus, for example, Altner (2004: 618) writes with regard to the increase of the SOC-29 mean value of 126.52 to 129.95, which Majumdar (2000) measured in a sample of MBSR participants: "This slight increase is not considered to be statistically significant. However, if Antonovsky's assumption is right that the sense of coherence in adults is a relatively stable personality factor, even a slight improvement as a result of an intervention would be regarded as a success."⁶ But if one thinks that the SOC should be better conceptualized as a dynamic state variable, it usually remains open whether a minor SOC change can be attributed to an intervention or to other internal and/or external factors. A particularly high modification of the SOC score could indeed indicate that the intervention was seen as a dramatic life event that has contributed to a radical

⁶ Translation by Florian Jeserich.

reorientation. But caution is necessary. Sack and Lamprecht (1997), for example, observed a significant increase in the SOC-29 total score by an average of 8 points in thirty patients who were treated in a psychosomatic clinic for about eight weeks. However, the average SOC enhancement was biased upward by the tremendous change in SOC of two participants, whose SOC mean values (which had a possible range between 29 and 203) had increased by 52 and 59 points! The explanation—that the two young patients had fallen in love during their stay in hospital (Sack and Lamprecht 1997)—seems to confirm Antonovsky's hypothesis: The SOC responds particularly to life events (e.g., a new partnership) that modify the current lifestyle and patterns of experience completely. Methodologically, it is therefore necessary to detect such individual life events during the study to check whether the SOC dynamics can actually be attributed to the intervention or whether contextual factors are responsible for any SOC changes. Another striking result is reported by Israeli scientists Vered Delbar and Dan E. Benor (2001), who evaluated a structured nursing program that aims to empower cancer patients. The SOC-29 mean value of the individuals who participated in the program increased from 138.58 points to 153.08 points, which is over 11 percent. In particular, the SOC component manageability increased significantly, from 48.27 points to 53.88 points. The difference between the treatment group ($N = 48$) and the control group ($N = 46$) was remarkable in that the SOC-29 score of the patients who did not receive training decreased from an initial 149.15 points to 139.04 points.⁷ Delbar

⁷ For the purpose of comparison, more results of quantitative intervention studies are given here: Berg and Hallberg (1999) found that the SOC-29 median of eighteen nurses who had been supervised increased 7 points after twelve months, from 146.6 points to 153.6 points (an increase of 4.8 percent). Ying (1999), who measured the parents' SOC-29 in migrant families after an eight-week conflict resolution program, came to a similar conclusion: The score increased from 146.7 points to 155.5 points (an increase of 6 percent). A salutogenic talk therapy intervention led to an SOC increase of 6 points in the intervention group ($N = 59$), while the SOC median of the control group ($N = 47$) dropped by 2 points (Langeland, Riise, et al. 2006; Langeland, Wahl, et al. 2005). Heimbeck (2008) reported the positive effects of an endurance training program (SOC increased by 5.93 percent in six months) and of a disorder-specific exercise therapy (SOC increased by 6.33 percent in six months) in depressed clients. Mittermair and Singer (2008) observed a highly significant increase of the SOC-13 of 118 clients from 42.8 to 47.6 (11.2 percent) after participation in a Jungian short-term intervention (five days) called Hero's Journey. A week-long program that aimed at permanently changing the lifestyle of cardiac patients ($N = 27$) brought a rather small effect: After a year, the SOC-13 median increased by 4.1 percent, from 43.9 points to 45.7 points (Pischke et al. 2008). After a three-day self-awareness training program, Mattes (2009) found that the SOC-29 mean values had risen in both of his study groups; in group 1, it increased by 4 points (1.97 percent), and in group 2, it increased by 16.5 points (8.13 percent). In a recent study, the effectiveness of cognitive behavioral therapy ($N = 23$) was evaluated and compared with outcomes for clients who were treated with resource-oriented therapy ($N = 39$). After about thirty individual sessions, a significant increase in SOC-13 of 12.1 percent and 15.1 percent, respectively, was found (Willutzki, Teismann, and Schulte 2011). Relatively few studies support Antonovsky's sta-

and Benor (2001) were surprised by their findings because they did not expect the SOC, designed as a relatively stable life orientation, to fluctuate so much. At the end of their discussion, Delbar and Benor pointed out that in view of such a finding, they felt impelled to consider the SOC construct as a situational variable. On the other hand, they wondered whether the fluctuations in the SOC values could possibly be explained by the extreme life situation (cancer diagnosis) and not by the short intervention. The studies evaluating the SOC-enhancing effects of religious/spiritual interventions can now be assessed in light of the interdisciplinary discourse on the modifiability of the SOC.

Intentional SOC Modification by Religiously/Spiritually Based Interventions

The first intervention study to investigate the effects of a religiously/spiritually oriented therapy on the SOC was probably the work of the Swedish psychotherapists Björn Wrangsjö and Dag Körlin (1995). They explored, among other things, the effect of guided imagery and music (GIM) on the SOC of fourteen healthy clients and found considerably enhanced scores after music therapy sessions (for information on this study, see Bonde 2004). However, the concrete results of this paper could not be elicited. The same holds true for another early intervention study—presumably that of Kabat-Zinn and Salmon (n.d.), though this can be determined only from secondary literature (e.g., Buchheld and Walach 2001; Carmody et al. 2008; Kabat-Zinn 1990; Majumdar et al. 2002) that the religiously/spiritually inclined intervention, a multiweek course in MBSR, also led to a significant SOC increase. Both studies initiated further research. In 1999, in his psychological thesis, which was published in 2000 in book length, Marcus Majumdar evaluated the health benefits and the SOC-enhancing effect of mindfulness-based meditation. In 2002, Körlin and Wrangsjö, building on the results of their prior study (Wrangsjö and Körlin 1995), retested the GIM method. Nine of the twenty-one intervention studies that could be identified (see Table 1) verify the effectiveness of Kabat-Zinn's MBSR, and five deal with the effectiveness of the GIM method.

bility postulate; see, for example, the findings of the large-scale Berus study in Germany (Broda, Bürger, and Dinger-Broda 1995; Broda et al. 1996).

Table 1: Overview of Studies Evaluating the Effects of Religiously/Spiritually Based Interventions on SOC

Source	Population ^a	Intervention	Duration	SOC	t_1^b	$t_2^{b,c}$	$\uparrow\downarrow^b$
Majumdar (2000); Majumdar et al. (2002)	German patients ($N = 21$)	MBSR (Kabat-Zinn 1982)	8 weeks: 2.5 hours/week (group session), at least 30 minutes/day (individual homework), and a 6–7 hour retreat after 6 weeks	SOC-29	4.36	4.48	$\uparrow 0.12$
Körlin and Wrangsjö (2002)	Swedish clients ($N = 30$)	GIM (Bonny 1978a, 1978b, 1980)	2–24 months: one individual GIM-session each week (1.5–2 hours)	SOC-29 SOC-V SOC-H SOC-B	4.41 3.97 4.51 4.90	4.87 4.31 5.10 5.34	$\uparrow 0.46^*$ $\uparrow 0.34$ $\uparrow 0.59^*$ $\uparrow 0.44^*$
Rajagopal et al. (2002)	Elderly population ($N = 22$)	Prayer wheel individual (I); Prayer wheel group (G) (Rossiter-Thornton 2000)	6 weeks: approx. 40 minutes per session	SOC-13	4.25 4.51	— — (I) (I) (G) (G)	\uparrow^*
Weissbecker et al. (2002)	Women with fibromyalgia ($N = 37$)	MBSR (Kabat-Zinn 1990)	8 weeks: 2.5 hours/week (group session), at least 30 minutes/day (individual homework), and a 6–7 hour retreat after 6 weeks	SOC-29	4.50	4.81	$\uparrow 0.31^*$
Bonde (2004)	Women with cancer ($N = 6$)	GIM (Bonny 1978a, 1978b; Ventre 2002)	20 weeks: 10 individual sessions (approx. 2 hours) each 2 weeks	SOC-29	4.64	5.09	$\uparrow 0.45\#$

Source	Population ^a	Intervention	Duration	SOC	t_1^b	$t_2^{b,c}$	$\uparrow\downarrow^b$
Heider-scheit (2005)	Adults in chemical dependency treatment ($N = 10$)	GIM (Bonny 1978b; Bruscia 1996)	30–60 days: an individual GIM-session (1.5–2 hours) each week	SOC-29 SOC-V SOC-H SOC-B	— 3.10 4.43 4.88	— 3.66 4.93 5.28	— $\uparrow 0.56\#$ $\uparrow 0.50\#$ $\uparrow 0.40\#$
Agee (2006) ^d	Healthy population ($N = 19$)	MBSR (Kabat-Zinn 1990)	5 weeks: one session (1 hour) each week	—	—	—	$\uparrow\#$
Chen (2006)	Drug-addicted inmates in Israel ($N = 43$)	Twelve-step program of Narcotics Anonymous (Nowinski and Baker 1992)	6 months: 4 hours daily	SOC-29	3.12	3.62	$\uparrow 0.50^*$
Mackenzie, Poulin, and Seidman-Carlson (2006)	Nurses and nurse aides ($N = 16$)	MBSR (Kabat-Zinn 1990)	4 weeks: one group session each week, and at least 10 minutes practice 5 days a week	SOC-13	4.47	5.05	$\uparrow 0.58\#$
Wiesmann et al. (2006)	Active German seniors ($N = 42$)	Cardio training and power training or yoga and meditation	14 weeks: one session per week	SOC-29	5.27	5.44	$\uparrow 0.17$
Scheutz (2007)	Healthy population ($N = 20$)	Ritual body postures and ecstatic trance (Goodman 1990)	10 weeks: one session per week	SOC-29 SOC-V SOC-H SOC-B	4.69 3.96 4.69 5.40	4.87 4.20 4.73 5.68	$\uparrow 0.18$ $\uparrow 0.24$ $\uparrow 0.04$ $\uparrow 0.28$
van Puym-broeck, Payne, and Hsieh (2007)	Informal caregivers ($N = 6$)	Yoga (in the tradition of BKS Iyengar and Sri K. Pattabhi Jois)	8 weeks: one group session (2.5 hours) each week, encouragement to practice yoga at home	SOC-13	4.42	4.65	$\uparrow 0.23^*$

Source	Population ^a	Intervention	Duration	SOC	t_1^b	$t_2^{b,c}$	$\uparrow\downarrow^b$
Dobkin (2008)	Women after breast cancer treatment ($N = 13$)	MBSR	8 weeks: 2.5 hours/week (group session), at least 30 minutes/day (individual homework), and a 6–7 hour retreat after 6 weeks	SOC-29 SOC-V SOC-H SOC-B	4.40 3.59 4.69 5.13	4.64 3.87 4.84 5.49	$\uparrow 0.24\#$ $\uparrow 0.28\#$ $\uparrow 0.15\#$ $\uparrow 0.36\#$
Fernros, Furhoff, and Wändell (2008); Fernros (2009)	Swedish clients of a training center for mind-body medicine ($N = 83$)	Guided/active meditation, mindfulness, dance therapy, breathing therapy, chakra experience, etc. (Stern 1996)	7 days: 14 hours daily	SOC-13	4.54	4.77	$\uparrow 0.23^*$
Murphy (2008)	Adults in substance abuse treatment ($N = 9$)	GIM (Bonny 2002)	3 weeks: 8 group sessions	SOC-13	5.35	5.50	$\uparrow 0.15$
Gyllenstein, Ekdahl, and Hansson (2009)	Psychiatric outpatients ($N = 38$)	Basic body awareness therapy: tai chi, Zen, Grindler, Feldenkrais, Alexander technique (Gyllenstein 2001)	6 months: 12 sessions	SOC-29	4.10	4.83	$\uparrow 0.73\#$
Matousek and Dobkin (2010)	Breast cancer patients ($N = 57$)	MBSR (Kabat-Zinn 1990)	8 weeks: 2.5 hours/week (group session), at least 30 minutes/day (individual homework), and a 6–7 hour retreat after 6 weeks	SOC-29 SOC-V SOC-H SOC-B	4.61 3.89 4.79 5.37	4.91 4.24 4.97 5.77	$\uparrow 0.30^*$ $\uparrow 0.35^*$ $\uparrow 0.18$ $\uparrow 0.40^*$

Source	Population ^a	Intervention	Duration	SOC	t_1^b	$t_2^{b,c}$	$\uparrow\downarrow^b$
Ando et al. (2011)	Nurses ($N = 28$)	MBSR (Kabat-Zinn 1990)	2 weeks: 0.5–1 hour daily	SOC-13	3.62	4.02	$\uparrow 0.40$
				SOC-V	3.44	3.83	$\uparrow 0.39$
				SOC-H	3.35	3.70	$\uparrow 0.35$
				SOC-B	4.08	4.52	$\uparrow 0.44^*$
Dobkin and Zhao (2011)	Canadian patients ($N = 83$)	MBSR (Kabat-Zinn 1990)	8 weeks: 2.5 hours/week (group session), at least 30 minutes/day (individual homework), and a 6–7 hour retreat after 6 weeks	SOC-29	4.49	4.79	$\uparrow 0.30^*$

^a The data refer to the intervention groups only (for the results of the control groups, see Table 2).

^b The values refer to the seven-point Likert scale (1 = weak to 7 = strong) used in the SOC questionnaires.

^c Two studies (Bonde 2004; Chen 2006) used more than two time points. However, in this table, only the values of the SOC pretest and SOC posttest are listed.

^d I could obtain only an abstract of Agee’s dissertation.

* The SOC modification was considered statistically significant.

No statement regarding the statistical significance of the SOC modification could be found.

Because how sensitively the SOC responds to a religious/spiritual intervention is debatable, as is what internal or external factors are responsible for a fluctuating SOC, it seems to be necessary from a methodological point of view to integrate a control group into the study’s design. About half of the studies summarized in Table 1 can be referred to as controlled trials in this sense. In these studies, without exception, the researchers observed clear and partly highly statistically significant differences between the groups that participated in religious/spiritual programs and the comparison groups that carried out other types of practices or no practices (see Table 2).

Table 2: Comparison Between the Intervention and the Control Groups' SOC Dynamics

Reference	Results
Weissbecker et al. (2002)	The average SOC score of the MBSR group increased by about 9 points (+6.92%), while the SOC median of the control group decreased by almost 2.5 points (-1.77%).
Heiderscheit (2005)	In the experimental group ($N = 10$), an increase of the SOC-29 mean of 14.4 points (+ 12.3%) was recorded. The average SOC of the clients who underwent supportive therapy but did not participate in additional weekly GIM sessions ($N = 9$) increased by only 5 points (+4.6%). At least for the SOC subscale manageability, the difference was considered statistically significant.
Agee (2006)	The SOC score of the MBSR group ($N = 19$) did not significantly improve, but the outcome was at least as good as that of the comparison group ($N = 24$), which completed a five-week muscle relaxation training.
Chen (2006)	The average SOC score of the intervention group increased by 14.5 points (+15.3%), while the median of the control group increased by only about 3.5 points (+4.09%); the difference is considered significant.
Mackenzie, Poulin, and Seidman-Carlson (2006)	In the intervention group, the SOC increased about 7.5 points (+13.02%); in the control group, the SOC increased more than 2 points (+3.86%); the difference is classified as nonsignificant.
van Puymbroeck, Payne, and Hsieh (2007)	While the SOC median increased by 3 points (+5.22%) in the yoga group, it decreased in the control group by about 3 points (-5.26%).
Fernros, Furhoff, and Wändell (2008); Fernros (2009)	In the intervention group, an increase of the SOC value of 3 points was observed (+ 5.08%), while the SOC score in the control group increased by only half a point (+0.78%).
Murphy (2008)	Although a SOC increase of only 2 points (+2.88%) was measured in the intervention group, this result seemed to be very affirmative in comparison with the findings in the control group: a rather dramatic decrease in the SOC value of 18 points (-27.07%) was found.
Gyllenstein, Ekdahl, and Hansson (2009)	The SOC enhancement in the intervention group added up to 21 points (+17.65%). However, in the control group, the SOC also increased, by 14 points (+11.67%); the difference is not significant.

Reference	Results
Ando et al. (2011)	The intervention group's SOC median improved by about 5 points (approximately +11%), while the control group's SOC decrease was estimated at 1 point (approximately -1.8%); the difference is considered significant. Since the exact SOC values for the control group are not reported but had to be deduced from a figure in the original article, the numbers specified here are based on an estimate.

The data suggest that religiously/spiritually oriented interventions have a positive effect on the SOC score. Partly because of the small number of participants in the studies listed—for example, van Puymbroeck, Payne, and Hsieh (2007) and Bonde (2004) used sample sizes of only 6—we cannot exclude the possibility that the SOC dynamics can be explained by idiosyncratic factors that are not directly related to the religious/spiritual intervention. Schiepe (2008), for example, reported that in the course of half a year, critical life events can yield a decline in the SOC-29 median of up to 35.8 points (after a job loss) or an increase of up to 38 points (after a son or daughter has moved out). Although we cannot completely preclude the possibility that such biographical factors or life events skew the statistics, the fact that in all cases the experimental groups' SOC score was higher than the control groups' SOC score strongly suggests that the improvement in SOC can be traced back to the religious/spiritual practices. In four cases, the enhancement of the SOC median measured in the intervention studies listed in Table 1 even exceeded the SOC increase of 11 percent which puzzled Delbar and Benor (2001): Heiderscheit (2005) reported 12.3 percent; Mackenzie, Poulin, and Seidman-Carlson (2006) reported 13.02 percent; Chen (2006) reported 15.3 percent; and Gyllenstein, Ekdahl, and Hansson (2009) reported 17.65 percent. In sum, the empirical findings cast doubt on the revised stability hypothesis. Although Antonovsky considered a change in the SOC-29 score of no more than ± 5 points possible, the intentional modification of the SOC-29 median through religious/spiritual interventions ($N = 12$) ranges from 3.5 points (Majumdar 2000; Majumdar et al. 2002) to 21 points (Gyllenstein, Ekdahl, and Hansson 2009) with an average SOC increase of about 10 points. For the studies in which the short version of the SOC questionnaire was used ($N = 6$), the average increase is about 4 points. The improved SOC-13 scores range from about 2 points (Murphy 2008) to 7.5 points (Mackenzie, Poulin, and Seidman-Carlson 2006).

DISCUSSION

The effectiveness or SOC-enhancing potential of religiously/spiritually based interventions raises at least three questions:

1. Are the improvements of SOC merely reflections of a newly gained optimism, a situational sense of hope, that indeed has been established after termination of the intervention but that runs the risk of dissolving again after a certain period of time or when the person is faced with an unanticipated negative life event? Or does the postintervention SOC score denote a permanent change in the person's orientation toward life?
2. In view of the dynamics of the SOC, is there a difference between religious/spiritual interventions and secular interventions? Do interventions that involve religiosity/spirituality shape a person's worldview more profoundly than do methods that fail to address religious/spiritual aspects?
3. Is it possible to identify mechanisms or to formulate theoretical models that help to explain how religious/spiritual interventions affect a person's SOC?

I will address these three questions below.

Permanence of SOC Modifications

The discussed intervention studies provide little evidence that might help to give at least a tentative answer to the first question. In the first instance, this is due to methodological reasons: As Sandell (2005) notes, the SOC mean value fluctuates before, during, and after a psychotherapeutic intervention, which makes it seem necessary not only to perform a simple pre-post test but also to design a study in which the SOC is measured at multiple time points. Among the twenty-one studies listed in Table 1, only two (Bonde 2004; Chen 2006) used more than two time points.⁸ Analyzing the efficacy of the spiritually inclined twelve-step program of Narcotics Anonymous, Chen (2006) measured the SOC-29 score at four time points: before the intervention, twice during the program (after three and six months), and directly after completion of the intervention. She found that the participants' SOC increased linearly. Since Chen did not include a fifth time point (e.g., a couple of months after termination of therapy), it is unknown whether the SOC continued to rise, remained constant, or declined again.

Unlike Chen, the Danish music therapy researcher Lars O. Bonde (2004) abandoned peri-intervention test intervals and instead compared the pretest SOC score, the posttest SOC score, and the SOC score that he measured six weeks after GIM therapy. It therefore remains unclear whether the SOC increased linearly (as in Chen 2006) or fluctuated (as in Sandell 2005) in the course of therapeutic

⁸ Majumdar's (2002) study represents a special case. Although the study's design provides for three time points of measuring—before the intervention, immediately after termination of the intervention, and three months after intervention—SOC was measured only at the time points t_1 and t_3 . Therefore this intervention study cannot be considered a pre-post test in the strict sense; rather, it is virtually an attempt to explore the long-term effect of the MBSR course. However, the aforementioned methodological problems are associated with such a study design.

intervention. However, it is certain that the postintervention SOC decreased again after a time. This dynamic of bouncing back, which Antonovsky (1987) had inferred from theoretical considerations, was also observed in other intervention studies (e.g., Mittermair and Singer 2008; Pischke et al. 2008; Sack, Künsebeck, and Lamprecht 1997; Ying 1999). The empirical evidence suggests that the SOC can be improved significantly (i.e., by more than five points on the SOC-29 scale) by religiously/spiritually based interventions. Nevertheless, the theoretically perplexing SOC enhancement has to be qualified: An intentionally modified SOC is not stable but tends to decrease again.

Comparing Religiously/Spiritually Based Interventions with Secular Interventions

Theoretically, it is possible to contrast religiously/spiritually based and secular intervention studies. For example, the works listed in footnote 7 that have evaluated the effectiveness of different secular interventions using SOC as outcome parameter can be used as a horizon of comparison for the studies specified in Table 1: If one takes the SOC dynamics into consideration, one finds that both the average increase of the SOC median (+8.39 percent in the secular and +8.13 percent in the religiously/spiritually based intervention studies) and the spectrum of SOC mean values measured across the studies (increases of 1.97 percent to 16.5 percent by secular interventions and 2.75 percent to 17.65 percent by religiously/spiritually based interventions) are matchable. However, the study samples as well as the form and duration of the interventions vary so much that it seems doubtful whether it makes sense from a methodological point of view to make such a comparison. In addition, the enumeration of publications in footnote 7 is a rather unsystematic selection that cannot be the basis for a workable meta-analysis.

Moreover, from a religious studies perspective, one may question the tacit assumption that there is such a thing as religious/spiritual interventions that can be unambiguously distinguished from secular ones. This is not the place to discuss the distinction between the terms *religious* and *secular*, which will probably remain the subject of an insurmountable core debate within the study of religion (see, however, Niles 2003). Nonetheless, attention has to be directed to an epistemological and methodological problem: How did I determine which interventions have a religious/spiritual dimension and which do not? Why do I classify the interventions that are summarized in Table 1 as rather religiously/spiritually based and why do I consider the interventions that are listed in footnote 7 to be rather nonreligious/nonspiritual? In this article, I have not defined the terms *religious*, *spiritual*, and *secular*, instead drawing attention to the conceptions and the terminology of the analyzed texts. On one hand, there are studies in which the evaluated interventions are undisputedly linked to religious/spiritual aspects. Rajagopal

and colleagues (2002: 153), for example, refer to the prayer wheel as a “spiritually-based intervention.” However, not every case is that clear. On the grounds of intersubjective accountability, it has to be emphasized that there are, on the other hand, interventions that can be classified as religious/spiritual or secular only after closer examination. These classifications are justifiable, though admittedly subjective. To give an example, today there is broad agreement that the GIM method includes transpersonal aspects. This can be attributed to the fact that the clients are carried over into another, higher state of consciousness that helps them to transcend the actual situation, which is often perceived as painful. During the session, so-called peak experiences (see Maslow 1964) may occur. Helen L. Bonny, the creator of GIM, emphasized spirituality in the beginning and toward the end of her work (see, e.g., Bonny 2001; Bonny and Pahnke 1972; these and other relevant texts are reprinted in Summer 2002). Presumably to protect herself and her method against skepticism and criticism, in the middle of her creative period Bonny concealed the spiritual implications of her therapeutic approach from the research community (Goldberg and Dimiceli-Mitran 2010). Since that time, various authors have emphasized the spiritual dimension of GIM and have investigated it scientifically (e.g., Abrams 2002; Clarkson 1998–1999; Corboy 1999; Kasayka 2002; Marr 2001; Mårtensen Blom 2011; for other sources, see the excellent review article by Goldberg and Dimiceli-Mitran 2010).

A similar discourse surrounds Kabat-Zinn’s MBSR: Is the program a religiously/spiritually based intervention, as I have suggested, or is it a secularized practice? Since nearly half of the intervention studies listed in Table 1 evaluated the SOC-enhancing effects of Kabat-Zinn’s program, it seems obvious to single out MBSR as a prime example and to discuss in some detail why I decided to categorize it as a religiously/spiritually based intervention. To guard against misunderstanding, let me be clear that I do not intend to prove that MBSR is a religious/spiritual practice. Such a judgment cannot be rendered a priori, since one has to decide from specific case to specific case whether or not religious/spiritual aspects, however they are defined, are included in a particular session of mindfulness meditation. Again, if I come to the conclusion that MBSR can be described as a religiously/spiritually based intervention, then I do not imply that the therapy is religious/spiritual in essence. Rather, it should indicate only that the program probably has some overlap with certain religious/spiritual cognitions, emotions, and lifestyles or that it is practiced in a religious/spiritual context.

The American physician and Zen student Jon Kabat-Zinn, founder of the MBSR program and guiding spirit of the Stress Reduction Clinic at the University of Massachusetts Medical Center, tried to reduce the specific religious undercurrents of his meditation course to make it transdenominationally applicable and respectable in a largely secular-oriented scientific and medical community. In the over 500-page-long handbook *Full Catastrophe Living* (Kabat-Zinn 1990), there

are, according to the subject index, only five explicit references to Buddhism or Buddhist meditation. Indeed, Kabat-Zinn suggests that his stress reduction program is based on “a form of meditation originally developed in the Buddhist traditions of Asia” (Kabat-Zinn 1990: 2) and that “[t]he systematic cultivation of mindfulness has been called the heart of Buddhist meditation” (Kabat-Zinn 1990: 12), but he makes clear that the essence of mindfulness meditation is universal, since mindfulness “is basically just a particular way of paying attention. . . . For this reason it can be learned and practiced . . . without appealing to Oriental culture or Buddhist authority to enrich or authenticate it” (Kabat-Zinn 1990: 12). Elsewhere, Kabat-Zinn (2003: 145–146) claims: “There is nothing particularly Buddhist about it. We are all mindful to one degree or another, moment by moment. It is an inherent human capacity.” He also says, “Historically a Buddhist practice, mindfulness can be considered a universal human capacity proposed to foster clear thinking and openheartedness. As such, this form of meditation requires no particular religious or cultural belief system” (Ludwig and Kabat-Zinn 2008: 1350). Kabat-Zinn (1990: 364) not only disconnects mindfulness meditation from its specific Buddhist context, but also argues that “it is found in one form or another in all spiritual traditions and practices” (on European mysticism see, e.g., Buchheld and Walach 2004; Manstetten 2007; on the so-called Christian insight meditation, see Meadow, Culligan, and Chowning 2007; Steele 2000). Inherent in Kabat-Zinn’s pattern of reasoning are therefore two postulates of universalism: (1) Mindfulness is a state of consciousness that is attainable by *all* people, and (2) this particular state of mind plays a more or less important role in every religious/spiritual tradition. From this starting point, MBSR can be described, depending on interests and audience, as a purely neuropsychological and/or as a religious/spiritual phenomenon.

At least two reasons militate in favor of classifying MBSR as a rather religiously/spiritually based intervention. First, the religious/spiritual origins of the program are pointed out in the literature with regularity (e.g., Baer 2003; Shapiro et al. 2005). Usually, the root of MBSR is sought in Theravada Buddhism, specifically in Vipassana meditation. However, at times, hatha yoga is mentioned (e.g., Praissman 2008), or the Upanishads are claimed to be the origin of mindfulness. Miller, Fletcher, and Kabat-Zinn (1995: 193) state that “the roots of mindfulness can be found in yogic practices described in the Upanishads, dating back thousands of years before the advent of Buddhism.” Elsewhere, Kabat-Zinn specifies the traditions that were the his sources of inspiration: “Mindfulness Meditation has roots in Theravada Buddhism where it is known as *sattipana vipassana* or insight meditation, in Mahayana Buddhism, Soto Zen practices, and in the yogic tradition as expressed in the contemporary writings of J. Krishnamurti, Vimala Thakar, and Nisargadatta Maharaj” (Kabat-Zinn 1982: 34; see also Kabat-Zinn, Lipworth, and Burney, 1985). It is probable that the enigmatic term *mindfulness*

has contributed to this eclecticism. Shapiro and colleagues (2008: 842) write: “The term *mindfulness* has entered English as a translation of certain usages of words that include traditional Eastern *smṛti* (Sanskrit), *sati* (Pali), and *dran-pa* (Tibetan).” Second, Kabat-Zinn repeatedly breaks with his own rhetoric of secularization and spiritualizes the MBSR program. In an autobiographical essay, Kabat-Zinn indirectly describes the spread of the MBSR program as a mission in the religious sense. He thereby speaks of his own karma and legitimizes the attempt to popularize Buddhist concepts and practices in the West with the words of the Dalai Lama (Kabat-Zinn 2000). Even more tangible is the anchoring of the MBSR program in Buddhism by the explicit characterization of the method as “Dharma approach” (Kabat-Zinn 2000: 230) or, as the title of his essay puts it, “dharma practice” (Kabat-Zinn 2000: 225). The strategic respiritualization of MBSR is used to distinguish Kabat-Zinn’s own approach from other meditation-based stress reduction programs, namely, from programs that supposedly focus not on cultivation of wisdom and transformation of personality but on plain behavioral modifications. According to Kabat-Zinn (1996), MBSR should therefore be understood not as a mere concentration exercise or relaxation technique, but as a worldview or way of living. Even though these reasons explain why I decided to heuristically classify MBSR as a religiously/spiritually based intervention, I do not deny the tense interplay between religious/spiritual and secular framings of the program. On one hand, MBSR is a way of being; on the other hand, it is a mere eight-week-long intervention. On one hand, MBSR is conceived as a value and goal in itself; on the other hand, it is assumed that exactly this purposelessness relieves stress and leads to measurable effects. On one hand, MBSR is pictured as dharma practice that is deeply rooted in Buddhist thought; on the other hand, its universality and secularity are emphasized. From a macrostructural perspective, this tension is a striking example of contradictory but nevertheless complementary development processes: MBSR is part of an overall Easternization and spiritualization of (alternative/ complementary) medical services as well as a part of the Westernization and medicalization of religious/spiritual cognitions and practices.

To keep the discourse balanced and to lead in to the next discussion point, it seems appropriate to end with some words on medicalization. Often, the transfer of religious/spiritual concepts and practices in the largely secularized therapeutic/medical sphere leads to the reinterpretation and transformation of both the context and the decontextualized and recontextualized phenomenon. For example, Ludwig and Kabat-Zinn (2008: 1350) write: “The original purpose of mindfulness in Buddhism—to alleviate suffering and cultivate compassion—suggests a potential role for this practice with medical patients and practitioners.” Thus these authors blur the difference between existential liberation and health, between salvation and healing. In the clinical context, religious/spiritual superstructures are

wiped off, and the thus medicalized practical experience is reduced to its presumptive therapeutic effects; that is, the complex religious/spiritual exercise is transformed into an intervention. Different types of exercises such as Taoist and Hindu forms of yoga, Kabbalistic *tzeruf* (permutation and combination of Hebrew letters), *dhikr* of Sufism (remembrance of Allah), Confucian *jingzuo* (sitting still), Christian contemplation, and Buddhist practices are mentioned uncritically in the same breath and called by the same fuzzy term: *meditation* (Walsh and Shapiro 2006). Regardless of their inhomogeneous cultural bases, an attempt is made to isolate core factors that explain the health-promoting effectiveness of all practices that are classified as “meditative.” The health-related meditation research thus does not address the question of whether specific religious cognitions or emotions, the content of belief systems, or the settings of divergent religious cultures play a role in creating positive outcomes. This kind of medical thinking leads to my third question: What factors or mechanisms are responsible for the SOC-enhancing effect of religiously/spiritually based interventions?

How Do Religiously/Spiritually Based Interventions Work?

Intervention researchers are often content with the fact that something does work. The question of how something works is rarely asked and hardly ever answered. MBSR, to stick with my example, demonstrably improves the SOC of the participants, but the mechanisms by which it does so have not been determined. Hoopes (2009), for example, delineated a path model of the correlations between mindfulness, SOC, and perception of stress. On the basis of his empirical study, he proposed that SOC acts as a mediator between mindfulness and stress. However, this model says nothing about how mindfulness-based exercises influence the SOC: Is it a direct causal relationship? Or do other variables mediate between mindfulness and SOC? Buchheld and Walach (2001) try to understand the efficacy of Buddhist Vipassana meditation in the wider context of salutogenesis, thus delivering a starting point for a more complex model. “According to the salutogenic model of Antonovsky,” they write, “stressors are basic components of human life and their health consequences can be understood only through the coping process. By *altering the relationship to experience*, mindfulness applies to this model” (Buchheld and Walach 2001: 72).⁹ If one accepts this suggestion and applies it to the question of how the interventions work, the following causal chain can be developed: The cognitive/emotional attitude of mindfulness that is systematically practiced in meditation courses changes the way in which the person appraises internal and external stimuli, thus creating a new way of perceiving and assessing the world. By reducing affective reactivity (Sauer 2009), a mindful

⁹ Translation by Florian Jeserich; italics added.

person is more capable of appraising chronic stressors, major life events, and/or daily hassles as nonstressors (positive challenges) or even as resources (eustress) instead of defining a situation as stressful or harmful (for the stressor and appraisal concepts, see Antonovsky 1987). This reevaluation or nonevaluation of stimuli creates positive life experiences that can lead to the emergence of a strong, stable SOC (i.e., MBSR intervention → heightened mindfulness → positive/neutral appraisal of internal/external stimuli → positive life experiences → SOC → stress reduction → health).

This ad hoc model has at least two weak points. First, it appears doubtful that the effectiveness of MBSR—a one-time, eight-week-long intervention—can be reasonably explained by a mediating variable such as positive life experiences: Can an MBSR course possibly lead to such a prompt internalization of mindfulness that positive, SOC-enhancing life experiences are generated almost instantly? Maybe the ad hoc model makes sense only if mindfulness meditation is seen as a lifestyle, as a perpetual practice that may become a religious/spiritual source for the SOC development in the long run. Second, the ad hoc model seems to be too cognitively based. Mindfulness is understood as a mental attitude, and the cognitive appraisal of internal and external stimuli comes to the forefront. This distracts from the fact that mindfulness-based meditation is only a part of the MBSR program and that there are other exercises that specifically enhance physical well-being (e.g., yoga). The positive effects on the SOC could therefore also be attributed to simultaneously operating factors such as physical movement and body relaxation (for the positive correlation between physical training or sports and SOC, see Agee, Danoff-Burg, and Grant 2009; Bitzer-Gavornik and Unterrainer 2011; Galert 2010; Heimbeck 2008; Kohut et al. 2006). Although there is a tendency to associate religiosity/spirituality with mental and emotional procedures only, many interventions that are classifiable as religiously/spiritually based integrate bodily activities and techniques that alter body perception (e.g., Goodman's ritual body postures). Of course, the fact that one must give consideration not only to cognitive-emotional determinants but also to physical and social determinants shows how complex the issue happens to be. In addition, the mechanisms vary from intervention to intervention (the ad hoc model referred only to MBSR) and possibly also from individual to individual.

METHODOLOGICAL PERSPECTIVES

In future research, the question of which factors in which religiously/spiritually based interventions in which groups of people bring about an improvement in SOC could be tackled with a more refined analysis of quantitative data and/or triangulation with qualitative methods. The statistically sophisticated dissertation of Kohls (2004) may be used as a case in point. He submitted statistics for the items

of the SOC-13 questionnaire, thus interlinking theoretical questions with the armamentarium of the quantitative researcher: Such statistics enable one to determine which item values of the SOC questionnaire increased, which remained stable, and which decreased during or after an intervention. By means of such an analysis, one can draw conclusions about the adequacy of the measuring instrument (as an outcome parameter for intervention studies), research hypotheses can be tested, and new SOC-increasing (or SOC-decreasing) mechanisms can potentially be detected. To give an example: If you follow Coffey and Hartman (2008), the regulation of emotions can be viewed as a key impact factor of mindfulness. If their hypothesis is correct, it would be expected that, for instance, item 19 (“Do you have very mixed-up feelings and ideas?”) and item 29 (“How often do you have feelings that you’re not sure you can keep under control?”) of the SOC-29 questionnaire are answered more often with “seldom,” “very seldom,” or “never” during or after an MBSR course. From a methodological point of view, it is important to focus on the research instrument, for one can identify gaps between Antonovsky’s questionnaire and his salutogenic theory; in other words, the SOC construct does not map one-to-one to the SOC questionnaire (Jeserich 2012). Not only for this reason, but also because in this way previously unexplored mechanisms could be discovered, it is an advantage to support the quantitative intervention research with qualitative methods.

To illustrate the usefulness of a mixed-methods design, following is a section of an interview that Bonde (2004: 463) conducted with a former cancer patient:

[According to the SOC questionnaire you have improved your sense of coherence. Does that cover your experience?] Well, I’m glad to hear that! I think I do experience a development. On the other hand it is rather intangible, I mean, what is it I am scoring? [Something may change in your understanding of how you feel. Have you come to terms with some of your problems? Have you been given some tools?] I think I have. But like it comes in waves. The feeling of disempowerment can be overwhelming, it is almost like drowning. At a certain time point during the process I was almost drowning in some of the radiation damages, and I could not find a way of handling them. But when I got a new problem with other radiation damages *after termination of therapy I found myself able to handle them* much better. This is a picture of how I took something with me and used it in a different situation.¹⁰

The participant indicates that GIM therapy has helped her in overcoming her sense of powerlessness and, speaking in terms of SOC theory, in developing an overarching sense of manageability. A triangulated study could check whether the woman’s subjective perception (improved manageability) accords with the results

¹⁰ Italics added.

of the survey: Did she achieve a higher value on the SOC manageability subscale after termination of therapy? If one does not want to stop with the finding that there is, as the previously discussed intervention studies demonstrate, a barely explained positive relationship between religiously/spiritually based interventions and SOC but also seeks to determine how stable this relationship is over time and how it comes into effect in the person's everyday life, it is worthwhile exploring this process with qualitative methods as well.

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