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# Sense of Coherence and Unemployment

Academic dissertation

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## **Abstract**

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This dissertation examined sense of coherence in the context of unemployment. Four main questions based on Antonovsky's (1979, 1987a) theory and on earlier unemployment research were proposed. Firstly, the stability of sense of coherence following a labor market intervention and a change in life situation (reemployment) was studied. Secondly, sense of coherence was investigated as a moderator and as a mediator of the relationships between hardship factors and psychological distress during unemployment. Thirdly, it was examined whether the mediator effect of sense of coherence in hardships-psychological distress relationships was consistent under different situational circumstances (short vs. long-term unemployment). Finally, sense of coherence was investigated as a predictor of future changes in employment status of unemployed job-seekers.

The studies were based on two samples: (1) unemployed job-seekers participating in return-to-work program ( $N=74$ ), and (2) unemployed individuals participating in seven different labor market intervention programs ( $N=98$ ).

The results showed that sense of coherence changed over time following a labor market intervention program. Even greater improvement in overall sense of coherence was found among reemployed persons. Changes in the subcomponents of sense of coherence were not in line with each other as comprehensibility and manageability changed through an intervention but meaningfulness changed only following reemployment. Persons with weak personal resources showed to be more sensitive to changes, whereas younger age did not predict greater changes in individual's sense of coherence. Also negative changes were found as poor work ability and lacking coping resources predicted weakening coherence levels over time. Low sense of coherence showed to be a mediator but not a moderator of the relationships between hardship factors (impaired work ability, problem drinking and financial strain) and psychological distress during unemployment. The indirect effect of hardships on

psychological distress via sense of coherence was moderated by duration of unemployment: Sense of coherence acted as a mediator of hardships-distress relationships only among long-term unemployed persons. Strong baseline sense of coherence predicted reemployment and student status at the follow-up six months later. The results showed that sense of coherence enhanced the chances of getting out of unemployment by decreasing experienced psychological distress which in turn facilitated reemployment.

*Keywords: hardships during unemployment, psychological distress, reemployment, sense of coherence, unemployment*

## Tiivistelmä

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Tässä väitöskirjatutkimuksessa tarkasteltiin koherenssin tunnetta työttömyyden kontekstissa. Työn neljä päätutkimuskysymystä pohjautuivat Aaron Antonovskyn (1979, 1987a) teoriaan koherenssin tunteesta sekä aikaisempaan työttömyystutkimukseen. Ensimmäinen osatutkimus koski koherenssin tunteen pysyvyyttä ja siinä esiintyviä muutoksia työllisyysintervention ja elämäntilanteen muuttumisen (uudelleentyöllistyminen) seurauksena. Toisessa osatutkimuksessa tarkasteltiin koherenssin tunnetta mahdollisena moderaattorina ja mediaattorina työttömyyden aikana koettujen riskitekijöiden ja psyykkisen hyvinvoinnin suhteessa. Kolmas osatutkimus syvensi tätä tarkastelua ja selvitti, olivatko koherenssin tunteen mediaattorivaikutukset konsistentteja erilaiset tilannetekijät huomioiden, ts. sekä lyhytaikaisen että pitkään jatkuneen työttömyyden kohdalla. Viimeinen osatutkimus tarkasteli koherenssin tunteen ennustavuutta työmarkkina-aseman muutoksissa.

Tutkimuksissa käytettiin kahta eri aineistoa, joissa vastaajina olivat (1) työttömät työnhakijat jotka osallistuivat työllisyys Hankkeeseen ( $N=74$ ) ja (2) työttömät henkilöt, jotka osallistuivat seitsemään erilliseen työllisyysinterventioon ( $N=98$ ).

Tulokset osoittavat, että koherenssin tunne muuttui työllisyys Hankkeeseen osallistumisen seurauksena. Suurimmat positiiviset muutokset havaittiin niiden henkilöiden kohdalla, jotka löysivät uuden työpaikan seuranta-ajan kuluessa. Muutokset koherenssin tunteen osakomponenteissa eivät olleet yhteneviä: ymmärrettävyys (comprehensibility) ja hallittavuus (manageability) muuttuivat intervention vaikutuksesta mutta mielekkyys (meaningfulness) muuttui vain uudelleentyöllistymisen seurauksena. Henkilöt, joiden henkilökohtaiset resurssit olivat heikot, olivat alttiimpia koherenssin tunteen muutoksille, kun taas nuoremmat henkilöt eivät odotuksista huolimatta osoittaneet suurimpaa muutosalttiutta. Koherenssin tunteessa havaittiin myös negatiivisia muutoksia niiden henkilöiden kohdalla, joiden työkyky oli alentunut ja joiden coping-resurssit olivat heikot. Heikko koherenssin tunne osoittautui

mediaattoriksi mutta ei moderaattoriksi työttömyyden aikaisten riskitekijöiden (heikentynyt työkyky, alkoholin ongelmakäyttö ja taloudelliset vaikeudet) ja psyykkisen hyvinvoinnin suhteessa. Heikko koherenssin tunne oli välittävä tekijä riskitekijöiden ja psyykkisen hyvinvoinnin suhteessa vain pitkäaikaistyöttömien mutta ei lyhyen aikaa työttömänä olleiden kohdalla. Vahva koherenssin tunne ennusti uudelleentyöllistymistä ja opintojen aloittamista kuuden kuukauden seuranta-ajan kuluessa. Koherenssin tunne lisäsi työttömyydestä irtautumisen todennäköisyyttä siten, että se vähensi psyykkistä oirehdintaa, mikä vuorostaan lisäsi työhön paluun todennäköisyyttä.

Avainsanat: *koherenssin tunne, työttömyyden aikaiset riskitekijät, työttömyys, uudelleentyöllistyminen*

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## **1 Introduction**

According to the International Labour Organization (2009) the unemployment rate in developed countries and in the EU may increase to 7.9 % in the year 2009. This means that unemployment and job-loss will become a part of the lives of some 40 million people in those countries. As a result of the recent economic breakdown even more people will experience job insecurity following co-worker lay-offs or their own experiences of worsening working conditions, such as wage cuts and loss of other valued job features.

Because of the insecure and stressful situation in work life the question of coping with risk factors has become more and more important. In a turbulent situation with ever changing expectations towards employees, psychological resources such as flexibility, capability to deal with uncertainty and adaptability to new situations have become the key competencies of individual workers.

According to Antonovsky (1979, 1987a), sense of coherence (SOC) is a construct including the resources that are crucial for dealing with stress situations. The ability to find suitable coping strategies in changing situations and to remain optimistic even if circumstances seem to worsen are features of persons with a strong sense of coherence. As shown in several research reports (e.g. Albertsen, Nielsen, & Borg, 2001; Kinman, 2008; Nielsen, Matthiesen, & Einarsen, 2008) strong SOC can protect individuals from work life stressors and hinder tension from developing into stress. On the contrary, severe stress exposure, such as loss of employment can also deteriorate an individual's SOC, which in turn makes a person vulnerable and subject to stress related health problems (e.g. Hanse & Engström, 1999; Leino-Loison, Gien, Katajisto, & Välimäki, 2004). In sum, when dealing with recent changes in work life and maintaining workers' well-being under stressful conditions are considered, it can be concluded that sense of coherence is a construct that deserves to be investigated.

I will start my dissertation by introducing earlier unemployment research, the concept of sense of coherence and Antonovsky's ideas underlying his theory of Salutogenesis, the origins of health. Following that I will present the status of research dealing with sense of coherence and unemployment and the research questions of this dissertation. The second major part of this doctoral thesis consists of empirical studies and their results. The dissertation will be accomplished by summarizing all results and by discussing their meaning, both for sense of coherence research and for research on unemployment.

## 1.1 Psychological unemployment research: Theories and earlier results

Unemployment is both an individual and a societal problem. Unemployment is associated with various psychological problems, such as depression, anxiety, mental distress and psychosomatic symptoms (e.g. Brenner & Starrin, 1988; Frese & Mohr, 1987; Lahelma, 1989; Leana & Feldman 1990, 1995; Price, van Ryn, & Vinokur, 1992; Warr & Jackson, 1985; Warr, Jackson, & Banks, 1988; Viinamäki, Koskela, & Niskanen, 1993; Vinokur & Schul, 2002) and with increases in mortality rate and mental hospitalizations (e.g. Brenner, 1973).

By now, numerous studies have investigated the effects of unemployment on mental health. In recent years comprehensive meta-analyses about the deleterious effects of job-loss on mental well-being have also been published. The meta-analytic study of McKee-Ryan, Song, Wanberg and Kinicki (2005) reported an overall effect of  $d=0.52$  of unemployment on mental well-being. Compared to employed persons, unemployed persons also had poorer physical health. According to the results of McKee-Ryan and colleagues, long duration of unemployment increased the negative effects of job-loss on well-being. Compared to adult individuals, school leavers experienced greater distress due to unemployment. Well-being during job disruption was associated with further factors, such as coping resources and coping strategies, cognitive appraisal and demographic characteristics.

The more recent meta-analysis of Paul and Moser (2009) used a broader variety of mental health indicators also including depression, anxiety, psychosomatic symptoms and self-esteem as outcomes of unemployment. They reported an overall effect of unemployment on mental health of  $d=0.51$ . Among unemployed persons 34 % had psychological problems, whereas the prevalence of such problems was only 16 % among employed persons. Men and blue collar workers suffered most from unemployment and reported the highest distress levels. The effect of unemployment on mental well-being was strongest in samples which were collected in countries with weak economic development, poor unemployment protection and unequal income distribution. An important contribution of the Paul and Moser study was also that they provided meta-analytic evidence about the direction of the observed effects. Paul and Moser conclude that unemployment is not only associated with mental distress, but that job-loss also causes mental problems. Additionally, mental health based selection to unemployment does also occur.

As pointed out above, there is no doubt that unemployment has negative effects on mental health. The following question is *why* job-loss deteriorates persons' psychological health. Up

to now several scholars have attempted to find a theoretical explanation for negative mental health effects of unemployment. The most considerable ones are the theories of Jahoda (1982), Warr (1987) and Fryer (1986). According to Jahoda (1982) unemployment has destructive effects on mental health because job-loss causes a state of deprivation in the fulfillment of an individual's needs. She argues that work has not only a manifest function, i.e. earning income, but also latent functions which are important for mental health. Losing social contacts, clear time structure, social status and other latent functions of work lead to deprivation, and in turn to mental problems. Another theory suggested by Warr (1987) assumes that the absence of important work related features, such as opportunity for control and availability of money, is the mechanism which affects a person's well-being. Thus, both Jahoda and Warr argue that environmental factors (or the absence of such factors) determine an individual's mental well-being. This point of view has been criticized since it assumes an individual to be quite passive and reactive to external stimuli. On the contrary, the agency restriction theory of Fryer (1986) attempts to see an individual as an active agent trying to make sense of and cope with different events. According to him unemployment is associated with financial difficulties, poverty, insecurity about the future and low social power, factors which restrict the possibilities of an individual to be an active, self-determined agent that in turn affects an individual's well-being. The advantage of Fryer's theory is that it takes account of an individual as an active participant who does not just blindly react to external factors. Even though the theory seems to give a good opportunity to understand better the relationship of unemployment and poor mental health, the concept has not been operationalized nor tested in empirical settings.

Common to all of the three theories is that they concentrate on the resources an individual has or, more precisely, does not have. The absence of relevant resources, such as income, social contacts, social status, and opportunity for control, is seen as the cause of ill-health during unemployment. But is the cause-consequence relationship between unemployment and health that straight forward? In the meta-analytic study of Paul (2005) effect sizes from different unemployment studies were reported. The range of the effect sizes was very wide as in some studies an effect of unemployment on mental distress of  $d=3.86$  and in some an effect of  $d=-1.17$  was reported. In other words, some individuals seem to react to unemployment extremely negatively and experience great mental distress, whereas some persons seem to benefit from job-loss and improve their well-being following a dismissal.

Thus, it is obvious that unemployment has differential effects on different individuals and that these reactions cannot be explained just through restriction in resources. Coping theories provide another perspective that attempts to explain the variation in observed relationships between stressors and stress reactions. A coping theory that has been fruitfully applied to work life research was developed by Antonovsky (1979, 1987a). Antonovsky sees that the base of good health and well-being relates to personal resources. Nevertheless, his model also includes further aspects. Personal resources (or generalized resistance resources, GRRs as Antonovsky puts it) form a more general construct called sense of coherence. The point of view of this construct is that the absence of certain resources does not automatically lead to health complaints as the central stress resistance resource sense of coherence can have many origins which are not necessarily similar for all individuals. Antonovsky (1987b) argues that changes in life situations which normally are considered to be negative and in most cases lead to decreasing levels of well-being, can in some cases even have positive outcomes. For example, losing one's job can be seen as a sad loss or as an opportunity to reconsider one's career and alternatives at the labor market. Antonovsky (1987a) sums up that encountering a stressor can have negative, neutral or even salutary effects on a person's health, depending on the strength of an individual's sense of coherence. If a person's SOC is strong he or she does not only have rich coping resources but also knows how to use them and is in turn able to interpret emerging stress situations in a positive way, i.e. as challenges and not as burdens.

One might ask as to why sense of coherence is a theory suitable for explaining the phenomenon of ill-health during job-loss. The SOC concept has already been fruitfully applied to work stress research and has shown to have main, mediating and moderating effects in stressor-strain relationships (e.g. Albertsen et al., 2001; Feldt, 1997; Feldt, Kinnunen, & Mauno, 2000; Hogh & Mikkelsen, 2005; Kinman, 2008). SOC is also assumed to be the *central* stress resistance resource (Antonovsky, 1979) which is why it can be hypothesized that other constructs such as coping style, self-esteem or self-efficacy, are just further aspects of a more common construct sense of coherence. Several empirical studies have also shown that the theoretical relationship of SOC and health can be found in empirical settings as well (e.g. Eriksson & Lindström, 2005). There are also two further aspects to be considered: Sense of coherence concept has provided new ideas for planning of interventions which aim to strengthen individuals' resources and state of health and hinder negative stress effects. In fact, SOC based intervention programs have already been developed (Langeland, Trond, Hanestad, Nortvedt, Kristoffersen, & Wahl, 2006). Thus, introducing the SOC concept into unemployment research might bring new aspirations to designing of labor market

interventions. Furthermore, sense of coherence has been shown to predict return to work life (Hanse & Engström, 1999; Hansen, Edlund, & Bränholm, 2005; Hansen, Edlund, & Henningsson, 2006; Melin & Fugl-Meyer, 2001), information which might also help to understand why some unemployed persons find new employment and others do not. The following chapter includes a more precise description of sense of coherence theory and earlier findings related to the SOC concept and work life.

## 1.2 Sense of coherence and Salutogenesis

When the first book presenting Aaron Antonovsky's theory of sense of coherence appeared in 1979, it provoked lively discussion because of its novel approach: Antonovsky wanted to find out why people remain healthy in contrast to the main stream research of predictors of illnesses. Antonovsky got his novel idea of investigating origins (=genesis) of health (=salute) instead of disease as he studied population groups exposed to major stressors, such as concentration camp survivors. Surprisingly, many persons living through severe stress situations were healthy and doing well, an observation which awoke Antonovsky's interest and inspired him in developing his theory of Salutogenesis.

In his book "Unraveling the Mystery of Health" (Antonovsky, 1987a, p. 19) sense of coherence (SOC) is defined as "[...] 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." The definition of SOC includes three dimensions which refer to the three subcomponents of sense of coherence: comprehensibility, manageability and meaningfulness. Sense of comprehensibility refers to a feeling of confidence that nothing negative or surprising will happen and that life will go on as well as can reasonably be expected. Sense of manageability reflects a person's feeling of possessing all the resources one needs to solve problem situations and to combat stressors. Antonovsky (1987a) has underlined that it is not important to *possess* strong resources, but more important is to *believe* in having all the needed resources. Sense of meaningfulness expresses to what extent an individual sees his or her life as valuable and making sense, not only in a cognitive but also in an emotional way. The subcomponent meaningfulness presents the motivational aspect of the construct,

comprehensibility the cognitive aspect and manageability the instrumental aspect of sense of coherence. According to Antonovsky (1987a, p. 21) the motivational aspect of SOC, meaningfulness, is the most central one. Even if one's comprehensibility and manageability are strong but one is low in meaningfulness, a person will soon lose the understanding and feeling of having the resources in one's disposal. On the contrary, even if one has only weak comprehensibility and manageability but strong meaningfulness, one will always have a high motivation in searching for understanding and the resources needed. High values in all three dimensions means that a person's sense of coherence is strong.

The basis of strong sense of coherence is formed by generalized resistance resources (GRRs). Antonovsky (1979) underlines, that strong SOC can have various origins, meaning that even if individuals possess different resistance resources they can still have equally strong SOC. Living conditions vary not only between continents and countries but also within one country, which is why it is plausible that different kinds of resources are needed under different conditions. For example, computer literacy may be a central ability for persons living in Europe, but may be of little value if a person lives in a rural area in Africa. Generalized resistance resources are, for example, material resources, knowledge and intelligence, ego identity, rational, flexible and farsighted coping strategy, social support, cultural stability, religion or life philosophy and preventative health behavior. Antonovsky (1987a, p. 162) also states that a person's state of health is an important life situation factor and should therefore be seen as one of a person's GRRs, and not only as an outcome variable predicted by SOC.

According to Antonovsky (1991) further constructs representing "salutogenic strength" are self-efficacy (Bandura, 1977), hardiness (Kobasa, 1979) and locus of control (Rotter, 1966). The study of Smith and Meyers (1997) tested whether these supposed relationships can be also found in empirical settings. It came out that strong SOC persons were more likely to be hardy, had stronger self-efficacy and had more internal locus of control. Additionally, sense of coherence correlates negatively with the personality factor neuroticism (Costa & McCrae, 1989; Feldt, Metsäpelto, Kinnunen, & Pulkkinen, 2007) and with learned helplessness (Reynolds & Miller, 1984; Smith & Meyers, 1997).

### 1.3 Sense of coherence, health and coping

According to Antonovsky (1979, 1987a) the link between a person's resistance resources and his or her health is sense of coherence. Changes in an individual's SOC level affect in turn health status. Instead of dividing persons into healthy and sick, Antonovsky sees health as a continuum, the so-called ease–disease continuum. Persons with a strong SOC tend to move towards ease whereas persons with weak SOC move towards disease. SOC is considered to affect health through three different mechanisms. First, SOC can contribute to an individual's health directly, for example by affecting a person's hormonal level or bodily resistance to illness (Antonovsky, 1987a, p. 154). The strength of SOC is considered to be a crucial determinant of the likelihood of preventing disregulation and promoting homeostasis. Antonovsky (1987a, p. 160) hypothesizes that in the case of a stress situation a person not only mobilizes his or her personal and material resources, but also, through the central nervous system, his or her immunological and endocrinological (hormonal) resources to prevent damage to the organism.

Second, SOC can affect health by shaping a person's health behavior. Strong SOC persons tend to have more beneficial health behavior than their weak SOC peers. There is also empirical evidence showing that person's SOC level is related to, for example, smoking, alcohol consumption and physical exercise and that strong SOC persons smoke and drink less and exercise more often than their peers with a weak SOC (Hassmén, Koivula, & Uutela, 2000; Igna, Julkunen, & Ahlström, 2008, Kuuppelomäki & Utriainen, 2003; Midanik, Soghikian, Ransom, & Polen, 1992; Neuner et al. 2006; Ristkari et al., 2005).

The third possible mechanism through which SOC can affect health is the coping process. Antonovsky hypothesizes that successful coping with stressors is an experience strengthening a person's SOC, which in turn strengthens his or her health. In case of unsuccessful confrontation with stressors, a person's SOC will diminish, which in turn, damages health. Stress situations are not just some specific occasions in a person's life; on the contrary, stressors are assumed to be omnipresent which is why an individual constantly has to deal with them.

Antonovsky (1987a) distinguishes different phases in the coping process. First of all, as an individual perceives a stimulus, he or she has to define the stimulus as a stressor or as a non-stressor. Strong SOC persons tend to interpret a stimulus as a non-stressor and simply respond to it. Low SOC persons more often define a stimulus as a stressor, which leads to

development of tension, i.e. to a state of physiological activity and related emotions. Supposing that an individual defines a stimulus as a stressor, a further evaluation of the stress factor takes place. A stressor can be interpreted as dangerous, positive or irrelevant. Low SOC persons are apt to define a stressor as endangering their well-being, which can be the case also regarding positive stress factors, such as a promotion at work. Strong SOC individuals more often define a stressor as a positive challenge or as irrelevant. The reason for this is that strong SOC persons have earlier experiences showing that they can deal successfully with different kind of stressors.

Furthermore, strong SOC people are capable of also finding order and meaning in stressful situations and activating appropriate coping mechanisms. Strong SOC does not determine a certain coping style, but helps in finding a suitable and effective coping style for the particular situation. Having a strong SOC does not only mean that a person has more resistance resources, but also that he or she is capable in mobilizing them. Low SOC persons on the contrary, tend to find a stressful situation as chaotic, burdensome and overwhelming and give up making sense of the stressor. They also tend to focus on the negative emotions the situation has caused and instead of coping use their defense mechanisms, such as withdrawal from the situation. Low SOC persons also tend to disregard the feedback they get and show little or no motivation to change their behavior. Strong SOC persons, on the contrary, are used to getting feedback and are also keen to correct the course of their behavior. In sum, the reactions to stressors and behavior in stress situations are different among strong vs. weak SOC persons. These differences at every stage of the coping process lead to different outcomes, also concerning health status: The experience that one can cope successfully with stressors fosters SOC and health, whereas experiences of unsuccessful coping may lead to SOC and health damaging effects.

#### **1.4 Stability of sense of coherence**

Sense of coherence develops in childhood and early adolescence and is hypothesized to remain rather stable after the age of 30 (Antonovsky, 1979, 1987a). Perhaps the most critical point in Antonovsky's theory is the stable character of SOC. Many researchers (e.g. Breslin, Hepburn, Ibrahim, & Cole, 2006; Smith, Breslin, & Beaton, 2003; Volanen, Suominen, Lahelma, Koskenvuo, & Silventoinen, 2007) have criticized especially this aspect of the construct and shown empirically that SOC is not as stable as Antonovsky assumed.

Antonovsky himself considered SOC to be changeable to some extent and remain stable only if life circumstances remain unchanged. Consistent life experiences, in which the possibility of participation in shaping the outcome and a good load balance are guaranteed, are beneficial for SOC and foster its stability. If a person undergoes significant changes in his or her life situation a change in SOC is possible. Negative changes, like victimization in an accident or a divorce can lead to a diminishing SOC level, whereas positive changes, such as the birth of a child or recovery from an illness lead to increasing SOC levels. Antonovsky further assumes that individual's SOC can be changed intentionally as well, in particular through a therapeutic intervention. Despite the flexible character of the construct, an individual's SOC has the tendency to return to its original level. This is why temporary changes, i.e. "fluctuations around the mean" as Antonovsky (1987a, p. 124) puts it, are more common than permanent changes.

### **1.5 Sense of coherence and unemployment**

The experiences from work life are crucial in shaping an adult individual's sense of coherence (Antonovsky, 1987a, 1987b). Participation in decision making at work, social valuation of the occupation, the company, and the worker itself, social structures at the work place, and a good load balance are features of work that can shape an individual's SOC. Radical, major changes in working conditions can, in turn, change the strength of SOC (Antonovsky, 1987b, p. 158). Positive changes, such as getting a promotion, are expected to boost an employee's SOC, whereas negative changes, like worsening working conditions, may weaken the SOC.

Up to now several researchers have investigated sense of coherence in work life settings. It has been shown that positive work environment, for example, good organizational climate (Feldt, Kivimäki, Rantala, & Tolvanen, 2004), is related to strong SOC. Working under stressful conditions, such as experiencing violence at work (Hogh & Mikkelsen, 2005), can deteriorate an individual's SOC. Furthermore, it has been shown that SOC can also modify reactions to work life stressors. Strong SOC has been shown to protect employees from negative health effects and stress reactions caused by workplace bullying, work-home interface demands, work environment stressors and negative work characteristics, such as time pressure (Albertsen et al., 2001; Feldt, 1997; Kinman, 2008; Nielsen et al., 2008). There is also empirical evidence showing that weak SOC can make individuals vulnerable to work life stressors and transmit their effects to health (Hogh & Mikkelsen, 2005).

Antonovsky (1987b) described unemployment as “the life situation most destructive of the sense of coherence” (1987b, p. 158). He assumed that unemployment has severe effects on SOC, since several SOC fostering factors provided by work are lost by job-loss. Job disruption means also the loss of the social relationships in the work place and opportunities to gather feelings of consistency in the form of group rituals. Losing one’s job makes it difficult to predict the future, which also has negative effects on SOC.

Despite of Antonovsky’s argument of job-loss being a major risk for an adult individual’s SOC, only a few empirical studies have investigated sense of coherence during unemployment. Most of these studies are cross-sectional and simply report that unemployed person’s SOC is lower than the one of their employed peers (Kabbe, Setterling, & Svensson, 1996; Matsushita, Ohki, Hamajima, & Matsushima, 2007; Niemelä, 2002; Starrin, Jönsson, & Rantakeisu, 2001; Volanen, Lahelma, Silventoinen, & Suominen, 2004). The results from the few longitudinal studies are somewhat confusing since some studies confirm the deteriorating effects of unemployment on SOC (Volanen, Suominen, Lahelma, Koskenvuo, & Silventoinen, 2007) whereas other studies hint that low SOC persons just are more apt to lose their jobs (Feldt, Leskinen, & Kinnunen, 2005); this kind of selection effect could also explain the lower SOC levels among unemployed persons compared to employed persons.

A couple of studies have investigated the role of SOC in coping with unemployment. Strong SOC seems to protect individuals from harmful health effects of job-loss whereas weak SOC unemployed persons suffer more often from health problems (Hanse & Engström, 1999; Leino-Loison et al., 2004). It has also been shown that experienced hardships during unemployment, i.e. financial problems, are related to low SOC levels (Starrin, Jönsson, & Rantakeisu, 2001). All of the mentioned studies are cross-sectional thus leaving the question of cause-effect relationship open.

Two earlier studies have investigated SOC in the context of intervention programs designed to counteract negative health effects of job-loss and to boost re-entry into work life. The results from these studies are contradictory, one study showing stable SOC levels across the intervention period (Juvonen-Posti, Kallanranta, Eksymä, Piirainen, & Keinänen-Kiukaanniemi, 2002) and the other improving SOC levels (Richter & Nitsche, 2002).

In sum, the role of sense of coherence in one of the major stress situations of an adult individual’s life, i.e. job-loss, has received only little attention, even though Antonovsky argued it to be most devastating to SOC. It is still unclear whether the damaged SOC of

unemployed persons can be boosted through supportive interventions and what role SOC plays in coping with health damaging stress factors during job disruption.

One aspect of coping with unemployment is also re-entry into work life. A completely uninvestigated question is, whether SOC could contribute to reemployment success. Only one study with health restricted unemployed participants of vocational rehabilitation hints that SOC could be a factor that predicts a person's success in returning to work (Melin & Fugl-Meyer, 2001). Whether SOC can predict reemployment success of unemployed job-seekers participating in back-to-work programs is still an open question.

## **1.6 Research questions**

This dissertation provides new information about SOC during unemployment and aims to answer the questions which earlier research has considered important, but which have not yet been answered. SOC's mediator and moderator effects on stressor-strain relationships during job-loss are still unclear and new research on these issues is needed. As pointed out earlier coping with unemployment not only is a question of health but deals also with re-entry into work life in which process SOC may also play a role. The question whether SOC can be facilitated during job-loss through interventions also relates to the research scheme of this doctoral thesis.

The first study presented in this dissertation will investigate the stability of and changes in sense of coherence among persons undergoing supportive labor market intervention. It will not only analyze whether SOC can change, but also if the changes in SOC's subcomponents will be different from each other. A further aim is to compare different groups of persons and to measure whether the changes in SOC are equal in different employment groups. The first study will also explore personal resources as possible predictors of changes in SOC.

The second part of this dissertation investigates the intervening role of sense of coherence in the relationship of experienced hardships and mental health. Both possible moderating and mediating role of SOC in those relationships will be investigated.

The third part, which presents empirical results, explores whether the mediating effect of SOC in the hardships–mental distress relationship depends on a further factor, duration of unemployment. It will investigate whether a recent job-loss is an acute crisis overwhelming

the effects of the personality disposition SOC and whether the mediating effect of SOC takes place only in case of chronic stress, i.e. in case of long-term unemployment.

The fourth and last section which presents empirical results will investigate sense of coherence as a possible predictor of future changes in employment status. Furthermore, the study will explore how such an effect takes place and whether SOC affects employment outcomes by decreasing mental distress among unemployed job-seekers.

The last chapter (chapter 6) summarizes the results of the empirical studies. The general discussion will also evaluate the contributions of this dissertation both to sense of coherence and to unemployment research.

## 2 Changes in sense of coherence following an intervention for unemployed individuals<sup>1</sup>

### 2.1 Stability of sense of coherence

Sense of coherence reflects an individual's orientation to life. It is defined as “*a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected*” (Antonovsky, 1979, p. 10, italics in the original publication). Individuals with a strong sense of coherence (SOC) see their environment as comprehensible and manageable and their lives as meaningful.

The most discussed question concerning sense of coherence is its stability. Several empirical findings show the test-re-test correlations of the SOC measure to be high (Eriksson & Lindström, 2005; Feldt, Leskinen, Kinnunen, & Mauno, 2000; Schnyder, Büchi, Sensky, & Klaghofer, 2000), which suggests that SOC is rather stable. However, even the inventor of the SOC concept, Aaron Antonovsky, believed SOC to be mutable. He argued that SOC is more of a “dispositional orientation” than a personality trait (Antonovsky, 1993). Antonovsky (1979, 1987a) expected SOC to remain stable only when an individual's life situation does not change; however, supposed minor fluctuations in SOC are still possible due to changing life events.

The assumption that SOC changes through drastic life events has also been confirmed by several empirical studies. For example, negative experiences like victimisation in an accident or financial difficulties, have been shown to weaken SOC (Kivimäki, Vahtera, Elovainio, Lillirank, & Kevin, 2002; Schnyder et al., 2000), whereas positive life events, such as recovery from a serious illness, have resulted in an increase in SOC (Karlsson, Berglin, & Larsson, 2000). Antonovsky (1987a) has also hypothesized that intentional modification of SOC through a therapeutic intervention is possible, which has been supported in recent research (Lillefjell & Jacobsen, 2007; Weissbecker, Salmon, Studts, Floyd, Dedert, & Sephton, 2002).

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<sup>1</sup> A preliminary version of this chapter was published in 2009 in the *Scandinavian Journal of Psychology*, Vol. 50, p. 161-171.

The current study will further analyze to what extent SOC is stable vs. changeable and, more importantly, whether changes differ between individuals, by using a study design which makes such a refined analysis possible. The respondents of the study are unemployed individuals with lowered sense of coherence levels and can therefore be expected to show particularly strong changes in their SOC levels (Eriksson & Lindström, 2005; Hakanen, Feldt, & Leskinen, 2007). The current study considers two main factors which can be expected to set SOC in motion: a positive life event (reemployment) and an intervention program designed to support individuals during unemployment. Major changes in SOC are expected to occur during the follow-up period, which allows me to concentrate on the details of the changing process.

## **2.2 Sense of coherence and unemployment**

Work life provides opportunities to gather experiences which are important for the stability and further development of an adult's SOC. Participation in decision making, overload-underload balance, and consistency in work life promote a strong sense of coherence, which in turn promotes employees' health and well-being (Antonovsky, 1987b). Positive changes in work life and improved organizational climate of one's work place result in strengthening of employees' SOC (Feldt, Kinnunen, & Mauno, 2000; Feldt, Leskinen, Kinnunen, & Ruoppila, 2003), whereas stressful events in work life have a negative impact on SOC. For example, experienced occupational stress has been shown to weaken SOC (Feldt et al., 2000).

According to Antonovsky (1987b, p. 158) the most devastating experience in work life is losing one's job. The stress reactions caused by unemployment are documented in various studies (e.g., Paul & Moser, 2006). Job loss also affects sense of coherence. Unemployed individuals have lower SOC than their employed peers (Kabbe et al., 1996; Starrin et al., 2001; Volanen et al., 2004), and the lowest coherence levels are reported for the long-term unemployed (Niemelä, 2002). Experienced hardships during unemployment make the situation even worse: unemployed individuals who experience greater financial strain, have poorer mental health, or have been subjects to shaming by others for being unemployed have lower scores in SOC than their peers (Leino-Loison et al., 2004; Starrin et al., 2001).

Longitudinal findings further confirm the deleterious effects of unemployment and unstable work careers on SOC. In a study of Virtanen, Rantalaiho, and Koivisto (2003) female

physicians who had difficulties in finding permanent employment after graduation had a lower sense of coherence than their peers with stable careers. Poor employment prospects of an occupational group can even lead to lower SOC levels within the whole profession (Virtanen & Koivisto, 2001). Feldt, Kokko, Kinnunen, and Pulkkinen (2005) confirm that a stable career line in adulthood is associated with strong SOC, whereas low SOC individuals more often experience unemployment during their career (Feldt, Leskinen, & Kinnunen, 2005).

Thus, involuntary changes in an individual's work life, such as unemployment, can alter one's SOC. The question arises as to whether these negative changes can be reverted by reemployment and – even more important – whether change in SOC will result from psychologically oriented interventions. Facilitating the SOC of unemployed people would benefit the individuals, since strong SOC can protect against the harmful health effects of job loss (Hanse & Engström, 1999; Leino-Loison et al., 2004), whereas weak SOC makes individuals more vulnerable to omnipresent stressors (Starrin et al., 2001). Furthermore, strong SOC also facilitates reemployment. Individuals who had a stronger SOC more often found a new job after a vocational rehabilitation and returned to work after sick leave (Hansen et al., 2005; Hansen et al., 2006; Melin & Fugl-Meyer, 2003). To show that SOC is changeable at all, as has already been done in several studies, is an important prerequisite, but the more important question appears to be whether change in SOC can be *actively produced*, for example, by an intervention for unemployed persons.

Only two earlier studies have investigated changes in SOC of the unemployed during labor market interventions. The results of a Finnish study (Juvonen-Posti et al., 2002) found no change in the level of participants' SOC, even though a decrease in psychological distress and an increase in perceived competence were observed. In a German study by Richter and Nitsche (2002), positive short term effects during an intervention were detected. However, the effects were only temporary and a decrease in SOC occurred at the third measurement point one year later.

Both earlier studies described above have limitations. In their study, Juvonen-Posti and colleagues (2002) used a very specific sample of job seekers with various disabilities and diseases. Contrary to their study, in the current study a more typical sample of job seeking people will be used. Furthermore, during the intervention chosen for this study at least some individuals are expected to re-enter the workforce, which will give the opportunity to investigate change in SOC caused not only by the intervention but also by a positive life event

(reemployment). In this respect the current study also completes the results of Richter and Nitsche (2002), who investigated changes in SOC following participation in volunteer jobs for community work but not after re-entry into paid work.

### **2.3 Development of study hypotheses**

As Antonovsky (1987a) has hypothesized and as empirical studies have shown (e.g., Lillefjell & Jacobsen, 2007; Weissbecker et al., 2002), both intentional modification through an intervention and drastic new life experiences can lead to changes in SOC. Therefore, it can be expected that the SOC of all participants of the intervention will strengthen (intentional modification). Furthermore, during an intervention for unemployed persons, at least some of the participants will probably become reemployed. It can be expected that the greatest improvements in SOC will occur among the reemployed ones (new life situation).

*Hypothesis 1: Unemployed individuals' sense of coherence will strengthen following participation in an intervention program.*

*Hypothesis 2: Reemployed individuals will show greater changes in their SOC than other intervention participants.*

Furthermore, changes in the subcomponents of SOC can be expected to differ from each other. The changes are expected to be different following both the intervention program and reemployment. The intervention is expected to affect, most of all, the subcomponents manageability and comprehensibility.

For strong manageability, overload-underload balance is crucial; i.e., an individual's feeling of having or not having resources at his/her disposal (Antonovsky, 1987b). In work life, an overload may threaten one's sense of manageability because, for example, the employee lacks opportunities to rest and recover from work. The opposite of overload, and equally harmful for manageability, is underload, which can be experienced during unemployment due to difficulties in finding alternative tasks instead of paid work. Feelings of boredom and monotony can follow, which can be expected to harm one's sense of manageability. Even more harmful than these negative affects is the loss of confidence that one can manage the challenges of work life once re-entering into it. It can be expected that the loss of confidence caused by underload during unemployment can be alleviated by intervention programs for the

unemployed. First, the intervention can provide opportunities to reinvent one's own personal resources. This is done in group and individual counseling with different practices, for example, by listing one's capabilities gathered through education, work experience, and also through activities beyond work life. Second, during the program, the participants have the opportunity of gaining new skills and knowledge by participating in shorter vocational courses or in vocational education. Therefore, sense of manageability can be strengthened through an intervention program for unemployed persons.

For comprehensibility, social relations play a crucial role (Antonovsky, 1987b). Shared values, a sense of group identification, and clear normative expectations help the individuals to rebuild a sense of consistency. It can be assumed that these kinds of needs can also be fulfilled through an intervention program for the unemployed. For example, in the early stage of the intervention selected for this study, individuals participate in group activities. Group membership helps the individuals to identify with a larger group with collective aims (reemployment) and encourages them to see the entire situation and their place in it. Information about how the labor market works and about an individual's own possibilities of changing the situation is provided. There are also discussions about how unemployment is not regularly a result of a personal failure, which in turn helps participants to reconsider unemployment as a normal phenomenon in the labor market and as a temporary phase of one's career. All this gives the participants a new view of unemployment, which fosters confidence and a feeling of security, and strengthens individuals' comprehensibility.

According to Antonovsky (1987b), participation in decision-making in work life is necessary for the meaningfulness subcomponent. Not only the possibility of making decisions about one's own work, i.e., which tasks are to be performed, or the pace at which the work has to be done, is important, but also decision-making as part of a collective group. Furthermore, Antonovsky (1987b) argued that, for an individual's meaningfulness, social valuation, i.e. valuation of the enterprise and the worker himself are important. Gaining rewards of work, especially earnings, is also crucial for sense of meaningfulness. Decision-making about one's work and experiencing one's work as valuable are experiences that can be gathered only in the work force. Therefore, it is assumed that, in this case, an intervention cannot replace paid work. Most explicitly is this the case with earnings; during an intervention the participants still receive only unemployment benefits, not a salary. Therefore, the experience most crucial in strengthening the meaningfulness subcomponent is a change in employment status, i.e., reemployment.

Hypothesis 3: *Changes in the three subcomponents of SOC will differ from each other. Manageability and comprehensibility will significantly strengthen following the intervention, whereas a severe increase in meaningfulness will only follow reemployment.*

Not all individuals can be expected to be equally sensitive to changes. According to Antonovsky (1979, 1987a), younger individuals' SOC are not yet fully developed and are therefore more sensitive to changes. The major development of an individual's SOC takes place in childhood and adolescence and this is considered to be fully developed by the age of 30. While fluctuations in SOC in childhood and adolescence are normal, adult individuals are expected to maintain constant SOC levels. This assumption has been confirmed by empirical results; earlier studies have shown that the SOC of older individuals is stronger (Eriksson & Lindström, 2005; Starrin et al., 2001) and also shows greater stability (Richardson, Ratner, & Zumbo, 2007) than the SOC of younger counterparts. Therefore, it can be assumed that older individuals in this study will show rather stable SOC levels over the study period, whereas the younger participants will show more changes in their SOC.

Hypothesis 4: *Younger participants (< 30 years) will show greater changes in their SOC than older participants.*

According to sense of coherence theory, general resistance resources (GRRs) form the foundation of a strong SOC. Rich resistance resources provide strong overall SOC whereas, in cases of poor resources, SOC is weaker and more sensitive to change. For example, GRRs can be preventive health orientation, knowledge, or intelligence (Antonovsky, 1987a, p. 184). Recent findings (Veenstra, Moum, & Roysamb, 2005) also conclude that state of health is a source of a strong sense of coherence, rather than an outcome variable, as Antonovsky (1979, 1987a) assumed. A relationship between GRRs and SOC has also been found in research with unemployed individuals: The scarcer the financial resources during unemployment, the lower the individuals' SOC, and vice versa (Starrin et al., 2001). Finally, while it is probable that individuals low in SOC are more prone to show changes in their SOC (Eriksson & Lindström, 2005; Hakanen et al., 2007), it can also be hypothesised that those unemployed individuals who have poor personal resources, and therefore low SOC levels, will benefit more from an intervention and hence show greater changes in their SOC than those individuals who still have a considerable amount of resources.

Hypothesis 5: *Individuals having poor baseline resources will show greater changes in their SOC than their counterparts with stronger SOC.*

## **2.4 Method**

### **2.4.1 Data collection procedures**

Longitudinal data were collected from participants in an intervention program aimed at the long-term unemployed and at short-term unemployed participants less than 25 years old without work experience and vocational education. During the program, individuals became reemployed, remained unemployed, or turned to some other situation (e.g., participating in labor market training or practical training in an enterprise).

The intervention program was conducted in East Finland. It provided multidimensional support meeting the different needs of the participants. During the intervention, not only was the job-search process supported, but the stressful life situation was also eased through different activities. The program combined three kinds of activities: labor market activities (i.e., vocational training and subsidized employment), personal guidance, and networking with other organizations providing support for the unemployed. Through networking, health care services and financial support could also be provided.

At the beginning of the intervention, all participants took part in group counselling, which lasted two months. Participants' job-search skills and activity were improved, and their coping skills were strengthened in order to both boost the job-search process and to make the process less stressful. After the start-up period, individual needs were assessed as a basis for further guidance processes, and different services were provided according to diverse needs. Participants could, for example, acquire new qualifications and update their professional knowledge through trainings and vocational education, or participate in health investigations and receive further recommendations for health care and rehabilitation.

The study had two measurement points at baseline and follow-up. The second measurement point was set six months past the first. During the follow-up time, both group activities during the first two months and individual plans with differing activities in the following months took place. The follow-up time was determined to be long enough for behavioral and employment outcomes to occur. A longer follow-up time might have resulted in fading effects

(Dormann, 2007). Also, earlier evaluations of labor market intervention effects on SOC have shown that after a short follow-up period, even of only four months, positive effects can be detected, but after a longer follow-up time the effects will fade away (Richter & Nitsche, 2002).

The data were collected during the years 2002 (T1) and 2003 (T2). During this period, the unemployment rate in the region was 14.1 % and 13.4 %, respectively (North-Savo Employment and Economic Development Centre, 2006). The baseline data were collected during the first week of the intervention activities. The questionnaire was delivered to the recipients by the counsellors of the program. The survey covered all new project participants (n=125) from March to December 2002. At the follow-up six months later, the questionnaire was mailed to the respondents and a reminder followed 2 weeks later. The response rate at the follow-up was 62 % (n=77). Due to missing data, three questionnaires were removed and the final sample size was n=74.

#### **2.4.2 Subjects**

The majority (64.9 %; n=48) of the respondents of the final sample was male. The mean age was 35.46 (SD 11.86), and the age of the participants ranged from 18 to 57. Of the respondents, 37.8 % (n=28) did not have a vocational education. The majority of the participants (78.4 %, n=58) could be classified as blue collar workers. The mean duration of unemployment of the respondents at T1 was 26.35 months (SD 26.18), and the duration, according to personal reports from the participants, varied from 1 month to 10 years of continuous unemployment.

#### **2.4.3 Measures**

##### *Sense of Coherence*

Sense of coherence was measured with the 13-item Orientation to Life-Scale (Antonovsky, 1987a), which has been translated into Finnish by Vuori (1993) and used with a Finnish sample in several studies (e.g. Feldt et al., 2000a; Juvonen-Posti et al., 2002). The items measure the extent to which an individual sees his or her life as having meaning, comprehensibility, and manageability. Responses are made on a seven-point scale and the

sum of the scores ranged from 13 (weak SOC) to 91 (strong SOC). To measure the changes in SOC, both the original scale with 13 items and three separate scales of its subcomponents were used, since earlier results from confirmatory factor analyses have shown the SOC scale to be a multidimensional, rather than a unidimensional scale, and that it can be organized in a model consisting of the three interrelated subcomponents comprehensibility, manageability and meaningfulness, regardless of the language version used (Finnish, French or Swedish speaking version of the scale) (Feldt & Rasku, 1998; Gana & Garnier, 2001; Söderhamn & Holmgren, 2004). Cronbach's alpha was 0.85 at T1 and 0.90 at T2. Alphas for the three subscales were 0.67 (T1) and 0.79 (T2) for comprehensibility, 0.62 (T1) and 0.64 (T2) for manageability and 0.66 (T1) and 0.77 (T2) for meaningfulness.

#### *Personal resources*

Reading of the unemployment literature leads to focus on four types of resources: 1) state of health measured as psychological distress, work ability and disability, or illness, 2) coping resources, 3) financial situation measured as the type(s) of financial aid received (e.g., unemployment benefits), and 4) level of vocational education.

#### *State of health*

*State of health* as a personal resource was considered to include three aspects: psychological distress, work ability, and incidence of disability or illness.

*Psychological distress* was measured with four items asking for typical symptoms (anxiety, depression, problems concentrating, and fear of social situations). These symptoms were measured with a 4 point scale varying from 1 (never) to 4 (every day). The sum of the scores ranged from 4 to 16 points. Cronbach's alpha at the baseline was 0.85. The scale was developed especially for this study, but similar symptom indexes for measuring distress among the unemployed have also been used in earlier studies (e.g. Vinokur, Price & Schul, 1995).

*Work ability* was measured with a visual analogical scale derived from the Work Ability Index (Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998) asking "What is your work ability now compared to your best work ability ever?" to be answered on a scale from 0 (unable to work) to 10 (best work ability ever). For the data analysis, the scale was reversed, i.e., high scores meant impaired work ability.

*Disability or illness* was assessed with a single item asking “Do you have a disability or an illness diagnosed by a physician which decreases your work ability?” This item was answered as either “yes” or “no”.

#### *Coping resources*

Coping resources were measured with a scale specially developed for this study, asking for positive affectivity, an indicator of personal resources widely used in unemployment research (e.g., McKee-Ryan et al., 2005). The scale consists of three items asking for a rating of any experienced sense of energy, optimism, and success in everyday tasks. These experiences were measured with a 4 point scale varying from 1 (never) to 4 (every day). The sum of the scores ranged from 3 to 12 points. Reverse scoring was used in the analysis, i.e., high scores meant lack of coping resources. Cronbach’s alpha at the baseline was 0.75.

#### *Financial situation*

Financial situation was measured by asking what type of financial aid the respondents received. Those receiving only social aid or having no income at all had the worst situation, whereas others receiving unemployment benefits had a better financial situation. The measure was treated as a dichotomous variable (not receiving unemployment benefits vs. receiving unemployment benefits).

#### *Education level*

Education level was measured by asking the level of vocational education that each participant had achieved. The measure was treated as a dichotomous variable (lacking vocational education vs. vocational education at any level).

#### *Labor market situation at T2*

This was measured by asking the participants to indicate their current situation: re-employed (permanent and temporary work contracts), subsidized employment, practical training in enterprises, vocational education or training, continuous unemployment, and any other situation, which proved to be sick leave in all cases ( $n=5$ ).

### *Demographic variables*

Demographics were assessed using standard survey questions for age, sex, duration of unemployment, and work experience in months. In the following regression analyses, gender and age (17-29 years old vs. 30 and over) were treated as dichotomous variables.

## **2.5 Results**

Analyses of attrition revealed no significant differences between respondents and dropouts in the following T1 variables: sex, age, vocational education, financial situation, duration of unemployment, work ability, psychological distress, coping resources, and sense of coherence. However, compared with respondents, drop-outs more seldom had work ability reducing disabilities or illnesses ( $\chi^2_{(1)}=16.90, p<.001$ ). Among drop-outs only 7 % ( $n=3$ ) had a disability or illness reducing their work ability whereas among respondents 44 % ( $n=30$ ) reported having such problems. When these figures are compared to earlier results it can be noticed that respondents' situation is more consistent with the situation of other Finnish unemployed persons: According to Holm, Jalava, and Ylöstalo (2006) the prevalence of work ability restricting disabilities and illnesses among unemployed Finns is 55 %. It can be concluded that the final sample is quite representative when the prevalence of disabilities and illnesses is considered.

Bivariate correlations of the variables included in the analysis are shown in Table 1.



Mean SOC of the respondents ( $n=74$ ) at T1 was 62.36 (SD 12.71). Because no control group was used in this study, respondents' SOC level was compared with other studies with Finnish samples in which the SOC 13-scale has been used. The respondents had significantly lower SOC than employed individuals ( $t=3.06$ ,  $p<.01$ ) and than the general Finnish population ( $t=2.09$ ,  $p<.05$ ) (Table 2).

Table 2. Mean level of sense of coherence in different studies

Unemployed <sup>1</sup> (n=74)	Employed <sup>2</sup> (n=13260)	General population <sup>3</sup> (n=18525)
62.36 (12.71)	66.06 (10.35)	65.12 (11.31)
Comparison with unemployed <sup>a</sup>		
	$t = 3.06^{**}$	$t = 2.09^*$

<sup>1</sup>Current study, mean at T1

<sup>2</sup>Pooled mean from 12 Finnish studies with employees<sup>2</sup>

<sup>3</sup>Pooled mean from the study of Feldt et al. (2007)

<sup>a</sup>Independent samples  $t$ -test. Standard deviations in parentheses.

\* $p <.05$ , \*\* $p <.01$

During the six months follow-up period, respondents' mean SOC significantly increased to 66.19 points (SD 13.87) ( $t_{(73)}=3.10$ ,  $p<.01$ ). Note that at T2 respondents' SOC was almost at the same level as the SOC of employed peers reported in previous studies (see Table 2). Since no control group was used in this study,  $t$ -tests were conducted for possible changes over time for the variables work ability and work experience, to ensure the validity of the result concerning measured SOC. Since no significant changes in the control variables work ability and work experience could be found, the findings concerning the SOC measure can be considered valid and supportive of the first hypothesis.

The changes in the three subcomponents of SOC were investigated separately (Table 3). As expected, the changes in the subcomponents comprehensibility ( $t_{(73)}=3.14$ ,  $p<.01$ ) and manageability ( $t_{(73)}=3.32$ ,  $p<.01$ ) were positive and significant, whereas the subcomponent meaningfulness ( $t_{(73)}=1.09$ ,  $p= ns.$ ) remained stable. Table 3 also includes effect sizes. Effect size was calculated by using the raw score –method presented by Morris and DeShon (2002).

<sup>2</sup> Feldt et al., 2000a; Feldt et al., 2003; Feldt et al., 2004; Feldt, Leskinen & Kinnunen, 2005; Hakanen et al., 2007; Harri, 1998; Kalimo et al., 2002; Kalimo et al., 2003; Kivimäki et al., 1998; Kivimäki et al., 2002; Virtanen et al., 2003; Volanen et al., 2004.

Table 3. *Change in sense of coherence and its subcomponents over time<sup>a</sup> (n = 74)*

	Score T1	Score T2	<i>p</i>	<i>d</i>
Sense of coherence Range: 13 - 91	62.36 (12.71)	66.19 (13.87)	<i>p</i> < .01	0.30
Comprehensibility Range: 5 - 35	24.23 (5.42)	25.92 (5.86)	<i>p</i> < .01	0.31
Manageability Range: 4 - 28	18.41 (4.50)	20.04 (4.26)	<i>p</i> < .01	0.36
Meaningfulness Range: 4 - 28	19.59 (4.53)	20.12 (5.17)	ns.	0.12

Note. *d* is the effect size. Standard deviations in parentheses.

<sup>a</sup>Paired-samples *t*-test

By the follow-up six months later, 14.9 % (n=11) of the individuals were reemployed and 20.3 % (n=15) had either a subsidized job or were working as trainees in an enterprise. Fifteen respondents (20.3 %) had participated in vocational education or training. Twenty-eight individuals (37.8 %) reported that they were still unemployed. Five (6.8 %) individuals were on sick-leave at T2.

To detect different changes between employment groups (reemployed vs. other individuals) during the follow-up period, repeated measures ANOVAs were calculated (Table 4). The analyses revealed differences between reemployed persons and individuals in other employment situations in overall SOC and in some subcomponents. Overall SOC of reemployed individuals compared to other participants showed a greater increase just as had been hypothesized, although the difference was only marginally significant ( $F_{(1, 72)}=3.64$ ,  $p<.10$ ) (Figure 1). As expected, the time×employment status interaction was significant for the meaningfulness subcomponent ( $F_{(1, 72)}=6.50$ ,  $p<.05$ ) (Figure 2). This means that there was a strong increase for the reemployed group, but no change for the participants who were not employed at T2. Notwithstanding the proposed hypothesis, in the subcomponent comprehensibility, the time×employment status interaction was also significant ( $F_{(1, 72)}=4.85$ ,  $p<.05$ ) and the reemployed showed a greater increase than their counterparts in other employment situations (Figure 3). In the subcomponent manageability, the difference between the reemployed and other respondents was not statistically significant ( $F_{(1, 72)}=.000$ ,  $p=ns.$ ) (Figure 4).

Table 4. Changes in sense of coherence and its subcomponents in two groups based on employment status at T2

	Reemployed (n=11)			Other situation <sup>1</sup> (n=63)			Time by employment situation interaction <sup>a</sup>
	Baseline mean (sd)	Post mean (sd)	Change	Baseline mean (sd)	Post mean (sd)	Change	
Sense of coherence Range: 13 - 91	62.73 (12.85)	72.09 (14.22)	9.36	62.30 (12.79)	65.16 (13.66)	2.86	$F(1, 72) = 3.64$ , $p < .10$
Comprehensibility Range: 5 - 35	23.64 (6.25)	28.09 (6.02)	4.45	24.33 (5.31)	25.54 (5.80)	1.21	$F(1, 72) = 4.85$ , $p < .05$
Manageability Range: 4 - 28	19.73 (3.52)	21.36 (4.37)	1.36	18.17 (4.63)	19.81 (4.23)	1.64	$F(1, 72) = 0.00$ , ns.
Meaningfulness Range: 4 - 28	19.27 (5.37)	22.64 (4.92)	3.37	19.65 (4.42)	19.68 (5.13)	0.03	$F(1, 72) = 6.50$ , $p < .05$

*Note:* While calculating repeated measures ANOVA no violations of sphericity were detected.

<sup>a</sup>Repeated measures ANOVA with time (within) and employment situation (between) as factors.

<sup>1</sup> Subsidized employment, practical training, labor market training and vocational education, unemployment, sick-leave

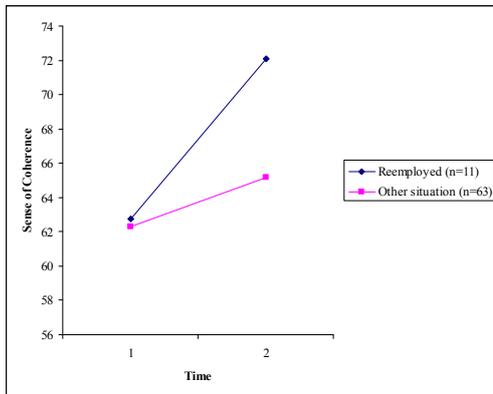


Figure 1. Change in sense of coherence in two groups based on employment status at T2.

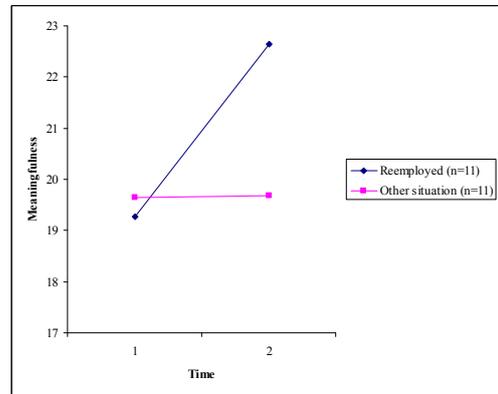


Figure 2. Change in meaningfulness subcomponent in two groups based on employment status at T2.

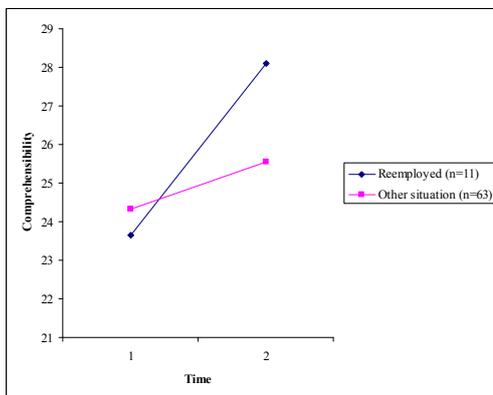


Figure 3. Change in comprehensibility subcomponent in two groups based on employment status at T2.

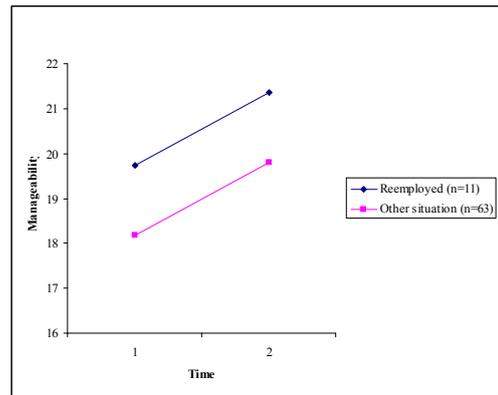


Figure 4. Change in manageability subcomponent in two groups based on employment status at T2.

In order to test for the effects of age and personal resources on change in SOC, a linear regression analysis was performed (Table 5). The hypothesis suggesting that participants younger than 30 ( $n=31$ ) would show greater changes in their SOC than older participants found no empirical support. In the regression analysis, age under 30 years did not predict changes in SOC.

The hypothesis suggesting that individuals with the poorest baseline situation would show the greatest changes in their SOC was only partly supported, and the changes were not positive in all cases, as assumed. Lacking vocational education ( $p<.05$ ) and also long duration of unemployment ( $p<.05$ ), which was used as a control variable in the model, predicted significant positive changes in overall SOC. It was expected that lacking resources would predict an increase in SOC, since Machin and Creed (2003) had also reported similar results; in their study, the unemployed with poor self-efficacy and high levels of psychological distress showed the greatest improvements at the follow-up. However, in the current study other significant effects were, contrary to expectations, negative. Impaired work ability ( $p<.05$ ) and lack of coping resources ( $p<.05$ ) did not predict an increase but a decrease in overall SOC over time. Experienced psychological distress, disability or illness, or financial situation did not predict changes in SOC.

Table 5. *Linear regression: Predictors of changes in sense of coherence over time*

Predictors	Sense of coherence T2			
	$\beta$	$R$	$R^2$	Adj. $R^2$
Step 1: Control variables				
Gender <sup>a</sup>	-.10	.717	.514	.481
Duration of unemployment <sup>b</sup>	.20*			
Employment situation at T2 <sup>c</sup>	.27**			
SOC T1 <sup>d</sup>	.63***			
Step 2: Predictors				
Age <sup>e</sup>	-.03	.805	.649	.574
Impaired work ability T1 <sup>f</sup>	-.24*			
Disability or illness T1 <sup>g</sup>	.06			
Psychological distress T1 <sup>h</sup>	.16			
Lacking coping resources T1 <sup>i</sup>	-.21*			
Financial situation T1 <sup>j</sup>	-.13			
Lacking vocational education T1 <sup>k</sup>	.20*			

Note. Beta values are from the final equation (with all predictors included).

<sup>a</sup>1=female, 0=male, <sup>b</sup>in months, <sup>c</sup>1=reemployed, 0=other situation, <sup>d</sup>91=strong to 13=weak, <sup>e</sup>1=<30, 0=30 and older, <sup>f</sup>10=unable to work to 0=no impairment, <sup>g</sup>1=yes, 0=no, <sup>h</sup>16=high to 4=low, <sup>i</sup>12=high to 3=low, <sup>j</sup>1=other than unemployment benefit, 0=unemployment benefit, <sup>k</sup>1=yes, 0=no

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## 2.6 Discussion

In his theory of sense of coherence (SOC), Antonovsky (1979, 1987a) assumed SOC to be a rather stable feeling of confidence which can also co-vary with external or internal influence factors. Ever since the theory was published, both the stability and the changeability of SOC have been an object of investigation. Several studies (Eriksson & Lindström, 2005; Feldt et al., 2000; Schnyder et al., 2000) that have investigated the test-re-test stability of the SOC measure concluded that the construct is rather stable, whereas recent intervention studies (Lillefjell & Jacobsen, 2007; Weissbecker et al., 2002) have shown that even though the measure shows high stability, changes in the mean level of SOC do occur. The current study confirms these results: Sense of coherence can change over time.

Both predicted change determinants, intentional modification through an intervention program, and change due to a positive life event, i.e., reemployment, were effective. These findings are in line with the considerations of Antonovsky (1979, 1987a), who also assumed SOC to be flexible and changeable. Furthermore, Antonovsky (1979, p. 124) assumed that changes occurring due to a particular experience can cause *a temporary and*

*minor* shift in one's SOC. In regard to this, the findings in this study contradict Antonovsky's assumptions. Even though the effect in overall SOC ( $d=0.30$ ) was only minor to medium, the change in SOC was more than 10 % for over half (52.7 %) of the respondents. Changes over 10 % are considered to be "real changes" in the level of SOC and differentiate from the normal fluctuations considered to take place during the lifespan (Karlsson et al., 2000). Furthermore, among reemployed individuals, a change of +9.36 points, equal to 15 %, was observed. It cannot be said whether the changes in SOC detected in the current study are temporary or permanent, but the changes detected are not minor ones. With regard to this aspect, the results of this study do not support the original theory of Antonovsky.

The validity of these findings is considerable, though no control group was used in the current study. However, this limitation was alleviated by using three different methods (Shadish, Cook, & Campbell, 2002). First, *normed comparison contrasts* were used by comparing the SOC scores of the unemployed in this study with the ones of the general Finnish population and employed Finns. As expected, the baseline SOC of the unemployed was significantly lower than those of employed peers or the general Finnish population. During the follow-up period, respondents' sense of coherence increased to almost the same level as employed peers' SOC. Therefore, the comparisons at least suggest that the participants of the current study are not a special group of unemployed persons. Second, *secondary source contrasts* were used by calculating the effect sizes from earlier intervention studies with SOC and by comparing them with the effect sizes detected in this study. In the study of Richter and Nitsche (2002), which investigated unemployed individuals participating in a program providing volunteer job opportunities, effect sizes of  $d=0.20$  and  $d=0.21$  could be found. In this study, greater effects in overall SOC ( $d=0.30$ ) were detected. However, in the setting of this study, paid work as well as personal guidance were provided, which can be expected to improve SOC more effectively. Compared to two further intervention studies, effects found in the current study were equal or somewhat smaller. For a stress reduction program for women with serious illnesses, an effect size of  $d=0.33$  was calculated (Weissbecker et al., 2002). Multidisciplinary rehabilitation for individuals with chronic pain resulted in an increase in SOC of  $d=0.51$  (Lillefjell & Jacobsen, 2007). If we consider the different results in the context of the interventions, it can be noted that the more supportive the intervention, the greater the improvement in SOC. In sum, the effect sizes are quite typical for such intervention studies. Third, *non-equivalent dependent variables* were used to show that variables which

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were not supposed to change (i.e., work experience and work ability) also remained stable during the follow-up. Therefore, it can be concluded that the changes in the core-dependent variables are not due mainly to general reactivity, for example as a result of measuring the same variables twice (Ormel, Koeter, & van den Brink, 1989).

A limitation of the current study can be seen in regard to the small sample size ( $n=74$ ). However, at the baseline, all project participants filled in the questionnaire, so no selection effect occurred. At the follow-up attrition did occur, but according to the analysis, the final sample was representative concerning the main measures.

The changes found in the subcomponents of SOC were not consistent with each other, so that these results provide new information about the change mechanisms in sense of coherence. Manageability and comprehensibility increased, whereas the subcomponent meaningfulness remained stable. This finding was expected, since Antonovsky (1987a, 1987b) also assumed the resources of subcomponents to differ from each other. It is plausible that the meaningfulness subcomponent remained stable after the intervention because experiences crucial to that particular subcomponent can be obtained only in the workforce; experienced pride and joy in work, chances for self-expression and participation in decision making in the work place are such experiences. The intervention, then, was designed to foster participants' personal resources by helping them to reinvent their individual strengths through group and individual counselling as well as by providing vocational training to gain new qualifications. These experiences form the basis of strong manageability. Social support was provided by program counsellors and by participating peers, which enabled the strengthening of comprehensibility.

Even though an increase in SOC following an intervention program was detected, a change in life situation, i.e., reemployment, seems to be even more beneficial. Overall SOC of reemployed respondents increased more than that of other respondents, even though the difference between the groups was only marginally significant. Maybe re-entry into paid work helped individuals to find a meaning to their lives, since an increase in the subcomponent meaningfulness was the greatest of all subcomponent increases. Reemployment seems to also provide experiences of consistency, since the subcomponent comprehensibility improved significantly with reemployed individuals. To conclude, the meaningfulness subcomponent can be changed only through drastic changes in life situation, i.e., reemployment. In the comprehensibility and manageability components, a change through supportive intervention is also possible.

As the impact of a positive life event on SOC was examined, the participants were divided into two groups, i.e. reemployed and people in other situations. Until the follow-up time six months after the baseline, only eleven persons (15 %) had found a new job. This is a very small group to be used in between-group comparisons. However, the result of 15 per cent reemployed of all participants following the intervention was a result to be expected; of the individuals who participated in the intervention during the period it was ongoing (from year 2000 to 2004), only 11 % were reemployed after the program (Hilpinen, 2004). So, it is quite typical that only a very small number of the participants are re-employed by the follow-up time. I am aware of the fact that with small sample sizes violation assumptions relating to ANOVA, such as *non-normality* or *inequality of variances*, are difficult to detect. A further question concerns how small the sample can be so that the calculations are still reliable. Some researches draw the line at 10 respondents; a sample of at least ten respondents should still produce reliable results (Bortz, 2005, p. 287). The sample of eleven reemployed respondents is small, yet, still acceptable for calculating repeated measures analysis of variance.

It can be asked why it was decided to measure change in SOC and in its subcomponents separately. When change in SOC (Dobkin, 2008) or the stability of the construct (Smith et al., 2003) is investigated, it is common to report the results both in the mean SOC and also in the subcomponents. Nevertheless, in the earlier studies, no considerations have been made concerning the possibility of finding different changes in the subcomponents. These considerations should be made, however, since the mechanisms which may affect certain subcomponents differ from each other (Antonovsky, 1987a). If we consider events in work life, not all of them affect the same subcomponents (Antonovsky, 1987b). For manageability, overload-underload balance is important, whereas for comprehensibility, social relations play a crucial role. Experiences in work life, which are crucial for adults' sense of meaningfulness, include participation in decision-making and experienced pride and joy in work. To conclude, since the experiences which affect different subcomponents differ from each other, in further investigations changes in the subcomponents should also be measured separately. Nevertheless, special attention should be paid to the fact that in the current study, the Cronbach's alpha coefficients for the subscales were partly under the .70 level, which indicates less than perfect reliability. If the subscales are further used as separate measures for the different components in future studies, ways to improve the reliability of the subscales should be considered. For example, studies using the subscales

of the SOC measure could utilize the longer 29-item version of the scale to ensure better reliability.

No support was found for the hypothesis that individuals under 30 years of age would show greater changes in their SOC. This finding contradicts Antonovsky's theory supposing individuals younger than 30 as being more sensitive to changes. The finding in this study is thus in line with the findings of Feldt et al. (2003) who reported that older age did not predict any greater stability in SOC. Furthermore, in this study, the difference between the age groups (younger than 30 vs. 30 and older) by T1 was not significant. This finding also contradicts Antonovsky's assumptions, but is in line with other empirical findings (Kivimäki et al., 1998).

It was also assumed that changes in SOC could be predicted by personal resources and that individuals having poor resources would be more likely to show changes in their SOC. This assumption was confirmed only partly, since lacking vocational education and long duration of unemployment, which was used in the analysis as a control variable, did predict significant positive change in overall SOC. This result is in line with the findings of Machin and Creed (2003) that individuals having the poorest situation at the baseline benefited most from intervention programs for the unemployed. Otherwise, the changes caused by a lack of resources were negative; impaired work ability and a lack in coping resources led to decreasing overall SOC. It can be concluded that work ability is a crucial resource for individuals who are trying to re-enter the workforce. Furthermore, strong coping resources are needed to master the stressful job-search process. This might be the reason why strong work ability and good coping resources are needed in order to benefit from a labor market intervention. Also, earlier studies have shown that certain resources are needed before positive changes in the employment situation can be expected: For example, strong self-esteem and job-search self-efficacy are crucial for both job-search behavior and for finding new employment (Kanfer, Wanberg, & Kantrowitz, 2001).

Finally, the finding that an intervention can also cause negative changes to some participants is not unique. Neutral (Brantwaite & Garcia, 1985; Caplan, Vinokur, Price, & Van Ryn, 1989) and even negative effects (Oddy, Donovan, & Pardoe 1984; Kristensen, 1991; Malmberg-Heimonen & Vuori, 2005) have also been detected in earlier intervention studies with unemployed respondents and with other outcome variables. It is, therefore, recommended that an evaluation of initial resources and risk factors of the potential participants be conducted. Directing the interventions to suitable participants, i.e., long-

term unemployed and non-qualified individuals, can increase the positive outcomes of such programs.

In conclusion, SOC was found to be a flexible construct responding to changes in life situation, i.e., reemployment, as well as to supportive intervention. Changes in SOC were independent of an individual's age. Especially sensitive to change were people with poor resistance resources (GRRs). Special effort should be made in selecting participants for intervention programs, since determinants which predict a negative change in individual's SOC were also found. Even though the mean SOC changed through the intervention program, it should be noted that not all of its components can be boosted through an intervention; for meaningfulness only a change through a drastic life event seems to be possible.

### **3 Sense of coherence as a moderator and mediator of the relationships of hardships and psychological distress during unemployment**

#### **3.1 Background**

A great deal of research has been conducted on the impact of unemployment on mental health. Unemployed individuals have lower psychological well-being than their employed counterparts: Unemployed persons suffer more often from depression, anxiety and psychosomatic symptoms than their employed peers, and they have poorer self-esteem and life-satisfaction than employed individuals (McKee-Ryan et al., 2005; Paul & Moser, 2009). According to meta-analytic evidence (Paul & Moser, 2009) the prevalence of mental health problems among employed persons is 16 %, whereas among unemployed persons the corresponding rate is 34 %. Furthermore, unemployment is often combined with other problems which may aggravate the mental health consequences of job-loss. One of these problems is impaired work ability. Earlier studies have shown that unemployed individuals' work ability is poorer than the one of employed peers (Holm, Jalava & Ylöstalo, 2006). Poor work ability is problematic not only because it may complicate the return to work life, but also because work ability correlates with mental health. In a study with office workers good work ability was associated with good general well-being measured as life satisfaction and meaning of life (Sjögren-Rönkä, Ojanen, Leskinen, Mustalampi & Mäлкиä, 2002). A significant negative correlation has been found between psychological distress-scores (measured with the General Health Questionnaire) and Work Ability Index scores in osteoarthritis patients (Lastowiecka, Bugajska, Najmiec, Rell-Bakalarska, Bownik, & Jddryka-Góral, 2006). In a Norwegian study with fibromyalgia patients (Kurtze, Gundersen, & Svebak, 1999) reduced work ability was significantly associated with anxiety and depression. Therefore, it can be expected that *impaired work ability* could be an additional stress factor during unemployment increasing mental distress among jobless individuals.

Unemployed individuals, especially men and long-term unemployed persons, consume more alcohol than their employed peers (Claussen & Aasland, 1993; Ettner, 1997; Janlert 1997; Janlert & Hammarström, 1992; Khan, Murray, & Barnes, 2002; Luoto, Poikolainen, & Uutela, 1998; Montgomery, Cook, Bartley, & Wadsworth, 1998). Furthermore, problem

drinking (Montgomery et al., 1998) as well as health problems due to drinking (Lahelma, Kangas, & Manderbacka, 1995) are more common among unemployed than among employed persons. This may be due to increasing alcohol consumption during unemployment or because of increased probability of losing one's job because of alcohol problems (Claussen, 1999; Dooley, 1992). Earlier studies have also shown that excessive alcohol consumption among unemployed persons is associated with depression and other mental health problems (Hämäläinen, Poikolainen, Isometsä, Kaprio, Heikkinen, Lindeman, & Aro, 2005; Viinamäki, Koskela, Niskanen, & Arnkil, 1993a). Thus, it can be concluded that *problem drinking* can be seen as an additional stress factor during unemployment increasing mental distress.

Job-loss also means loss of income. Experienced financial need is problematic, not only with respect to livelihood, but also in regard to well-being. Unemployed persons experiencing greater financial hardship report poorer mental health, mental well-being and life satisfaction than their less strained counterparts (Creed & Bartrum, 2008; Creed & Klisch, 2005; McKee-Ryan et al., 2005; Rantakeisu et al., 1999; Viinamäki et al., 1993b). Financial strain during job-loss is associated also with other mental health problems, such as depression and psychological distress (Creed, Muller, & Machin, 2001; Frese, 1987; Kirchler & Kirchler, 1989; Leana & Feldman, 1990, 1995; Price, van Ryn, & Vinokur, 1992; Vinokur & Schul, 2002; Vuori & Vesalainen, 1999). Therefore, *financial strain* can be seen as a specific stressor during unemployment increasing psychological distress.

In conclusion, there are several earlier studies showing that impaired work ability, problem drinking and financial strain are common problems among unemployed persons and that these hardships are associated with mental health problems. Nevertheless, it is less clear which individual factors influence the process whereby experienced hardships cause psychological distress among unemployed individuals.

In stress-strain relationship person's resistance resources play a crucial role. Strong resistance resources can protect against stressors and hinder negative health effects, whereas poor personal resources can make an individual vulnerable to stressors. Antonovsky (1979, 1987a) has proposed sense of coherence being an individual's *central* stress resistance resource. Furthermore, he has hypothesized that the strength of SOC determines whether the outcome of stressful life events is noxious, neutral or salutary (Antonovsky, 1987a). In other words, SOC is assumed to change the relationship between stressors and stress reactions. Therefore, in the case of unemployment it can be

hypothesized that hardships cause high distress especially among weak SOC persons (moderator effect). This hypothesis can be based also on earlier empirical findings reporting SOC's role in reactions to stress related to work life. In their cross-sectional study Hanse and Engström (1999) found not only a direct effect of employment status on symptoms of illness and on SOC, but also a moderator effect of SOC: Unemployment had a rather low impact on symptoms of illness in the presence of a strong SOC. Furthermore, SOC has been shown to have a moderator effect in the relationships of work environment stressors and stress symptoms (Albertsen et al., 2001), workplace bullying and negative health effects (Nielsen et al., 2008), work-home interface demands and psychological and physical health complaints (Kinman, 2008) as well as in the relationship of work characteristics and well-being (Feldt, 1997).

But inasmuch as SOC is considered to be a flexible construct, as was shown in the previous chapter, SOC can rather be expected to have a mediator effect in the stress–stress reaction relationship. This expectation finds support from earlier empirical findings as well. Kivimäki, Kalimo and Toppinen (1998) did not find any support for their hypothesis of SOC being a moderator of the relationship of stressors and experienced occupational stress. Furthermore, Hogh and Mikkelsen (2005) also reported that no moderating effects of SOC but mediating effects were found; SOC acted as a mediator in the relationship of exposure to violence at work and psychological, psychosomatic and cognitive stress reactions. In the study of Feldt, Kinnunen and Mauno (2000) SOC proved to act as a mediator between psychosocial work characteristics and general and occupational well-being. In sum, because earlier research has shown that SOC can act as a mediator in the relationships of stressors and stress reactions, it can be hypothesized that among unemployed persons hardships cause high distress because weak SOC transmits their effects on mental health.

Based on the theory developed by Antonovsky (1987a) and on earlier empirical findings (Albertsen et al., 2001; Feldt, 1997; Feldt et al., 2000; Hanse & Engström, 1999; Hogh & Mikkelsen, 2005; Kivimäki et al., 1998) the current study will examine moderating and mediating effects of SOC in the relationship of hardships and psychological distress during unemployment. The following hypotheses will be tested:

Hypothesis 1: *Unemployed persons exposed to hardships (impaired work ability, problem drinking or financial strain) will experience greater psychological distress than their non-exposed counterparts.*

Hypothesis 2: *Unemployed persons exposed to hardships will have lower sense of coherence than their non-exposed unemployed peers.*

Hypothesis 3: *Sense of coherence moderates the relationship between hardships and psychological distress (Figure 5).*

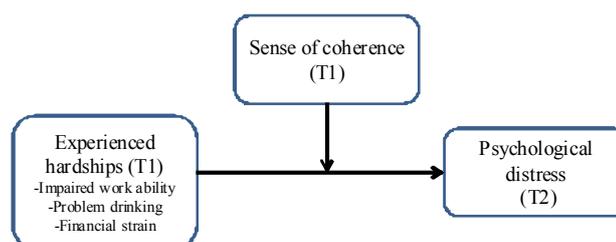


Figure 5. Moderator-effect model

Hypothesis 4: *Sense of coherence mediates the relationship between hardships and psychological distress (Figure 6).*

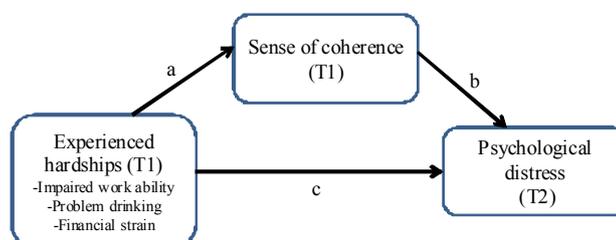


Figure 6. Mediator-effect model

## 3.2 Method

### 3.2.1 Data collection

In the current study a longitudinal design with two measurement points, baseline and follow-up six months later, was used. The respondents were participants of seven intervention programs conducted in Eastern Finland. Four of the programs were funded by the European Social Fund in collaboration with local organizations and three of the

programs were conducted by employment offices. The programs were aimed at individuals who were long-term unemployed (unemployed for 12 months or longer), and at persons who were under 25 years old and had no work experience or vocational education and had therefore poor employment prospects. Individuals in need of special guidance, i.e. unemployed persons with health complaints, also participated in the programs.

All programs provided support during the stressful job-seeking process by informing the participants about job-search strategies (e.g. how to find open vacancies or prepare a CV) and by allocating financial assistance for employers to ease the re-entry into the labor market. Re-employment was also enhanced by creating alternative job opportunities in enterprises and in the public sector in the form of practical training and work try-outs. The programs also provided diverse opportunities for gaining new qualifications through labor market training. These training events were either short term training, concentrating in special skills of some employment group (e.g. training in welding techniques for metal workers) or long-term training with a certificate or degree (e.g. commercial education programs). Group and individual counseling were used to enhance social support and to strengthen participants' personal resources. In these sessions the strengths and resources of the participants were evaluated and an individual action plan with a final goal (e.g. employment in a specific branch) was created. Because many participants reported health problems or limitations in their work ability, health care services and consultations by physicians as well as evaluations of rehabilitation needs were organized. All programs provided approximately similar services, either by internal personnel or by external experts, but some programs emphasized vocational training, whereas others concentrated on examinations of work ability. Some participants started their individual program with labor market training whereas others started with personal counseling. In spite of minor differences between the programs, the sample obtained can be seen as rather homogenous in terms of the interventions the respondents received. Participation in the programs was possible for up to 1.5 years, or until a person had returned to work life, started to study or was for some other reason no longer an unemployed job-seeker (e.g. persons on maternity leave or on sick-leave). Baseline data were collected from January 2006 to February 2007 and the follow-up was conducted six months later. During this time the unemployment rate at the Savo region varied from 14 % in January 2006 (beginning of baseline data collection) to 9.7 % in August 2007 (last follow-up). The difference in unemployment rates between North and South Savo was minor, ranging from January 2006 to August 2007 from 13.3 % to 9.4 % in North Savo and from 14.6 % to 10 % in South Savo

Employment and Economic Development Centre, 2006, 2007, South Savo Employment and Economic Development Centre, 2006, 2007).

The baseline data were collected at the beginning of the program, either at the beginning of labor market training or during the first individual counseling. Questionnaires were delivered to the participants by the program counselors. The questionnaire was filled in anonymously and respondents could, for example, drop the filled-in questionnaire into a box when leaving the counseling centre. The questionnaire was delivered to all new program participants in the period of time from January 2006 to February 2007. At the baseline, the survey was answered by 234 program participants, yielding a response rate of 78.5 %. At the follow-up six months later the survey was mailed to these respondents. The first reminder followed one week and the second reminder two weeks later. The response rate at the follow-up was 42.7 % ( $N=100$ ). Due to missing values, two questionnaires were removed and the final sample size was therefore  $N=98$ .

### 3.2.2 Subjects

The majority (67.3 %;  $N=66$ ) of the respondents of the final sample was female. The mean age was 40.02 (SD 11.34), and the age of the participants ranged from 18 to 58. Over one third, 34.7 % ( $N=34$ ) of the respondents, did not have a vocational education. The majority of the participants (62.2 %,  $N=61$ ) could be classified as blue collar workers. The mean duration of unemployment of the respondents at T1 was 21.17 months (SD 27.15), and according to participants' own reports, the duration varied from zero to 180 months of continuous unemployment.

### 3.2.3 Measures

#### *Experienced hardships (T1)*

*Impaired work ability* was measured with a 6-item scale based on the Work Ability Index (Tuomi et al., 1998). For the current study, items which suit unemployed respondents were selected. From the six selected items, one measured objective work ability, asking the number of current diseases diagnosed by a physician to be answered on a scale from 7 "none" to 1 "at least five diseases". The five remaining items measured subjective work

ability, asking self-estimated work ability to be answered on an visual analogical scale from 0 “unable to work” to 10 “very good”, work ability in reference to job requirements, both physical and intellectual, to be answered on a scale from 10 (“excellent”) to 2 (“very poor”), own prognosis of work ability in the next two years to be answered from 7 “I will be able to work” to 1 “I do not think I will be able to work”, and disease-related impairment of work ability to be answered from 6 “no diseases and no restrains” to 1 “unable to work”. For detailed information about the rating of each item see Tuomi et al. (1998). In this study the variable was reverse scored high scores indicating greater impairment of work ability. The scores can range from 7 (no impairment) to 50 (unable to work). Cronbach’s alpha was 0.82 at T1<sup>3</sup>.

*Problem drinking* was assessed with a 4-item scale developed by Ewing (1984). The scale has widely been used also with a Finnish sample (e.g. Nyström, Peräsalo & Salaspuro, 1993; Pitkänen, Kokko, Lyyra & Pulkkinen, 2008). The scale consists of four questions and has shown to be a sensitive indicator of covert problem drinking. The questions are: “Have you ever felt you should cut down on your drinking?”, “Have people annoyed you by criticizing your drinking?”, “Have you ever felt bad or guilty about your drinking?” and “Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hang-over?”. Two or more positive answers indicate problem drinking. In the regression analyses the variable was dichotomized (1=problem drinking, 0=no drinking problems).

*Financial strain* was measured with a 4-item scale that has been utilized widely for this purpose with unemployed people (Creed & Macintyre, 2001). The four items are “Do you have serious financial worries?”, “Are you often not able to do the things you like to do because of a shortage of money?”, “Are you often not able to do the things you need to do because of a shortage of money?” and “Are you often not able to manage on the money you have?”. Test-takers are asked to indicate the extent of their financial difficulties on a 5-point-scale from 1 (never) to 5 (all the time). The scores can range from 4 to 20 and higher scores indicate greater financial strain. The original English speaking scale was translated into Finnish by the author and the quality of the translation was ensured with a back-translation procedure in collaboration with two other persons (one a Finnish speaker and the other a native speaker of English). Cronbach’s alpha for the scale was 0.81 at T1.

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<sup>3</sup> Cronbach’s alphas are given only at T1 or at T2 depending on the time point in which the scale was used.

### *Sense of coherence (T1)*

*Sense of coherence* was measured with the 13-item Orientation to Life-Scale (Antonovsky 1987) and with the same Finnish version as in the first study (Vuori, 1993). Cronbach's alpha was 0.87 at T1.

### *Psychological distress (T2)*

*Psychological distress* was assessed with a 12-item scale, the General Health Questionnaire (Goldberg & Hillier 1979) which has been used in numerous Finnish and international studies (e.g. Lahelma, 1989). The General Health Questionnaire focuses on the person's capacity in everyday life and mental well-being during the last few weeks. It asks whether the individual has recently experienced a particular symptom (such as abnormal feelings) and the emphasis is on the changes in condition. Responses are made on options from 1 to 4 (1=better than usual, 4=much worse than usual). The scores can range from 12 to 48; the higher the score, the worse the general state of mental health. Cronbach's alpha was 0.93 at T2.

### *Demographic variables (T1)*

*Demographics* were assessed with standard survey questions for reporting sex, age, duration of unemployment, and vocational education. Vocational education was transformed into a continuous variable by recoding the education level into years in vocational education. Duration of unemployment was dichotomized in long term unemployment (1=duration of unemployment 12 months and over) and in short term unemployment (0=duration of unemployment less than 12 months).

## **3.2.4 Statistical methods**

*Main effects.* Main effects, i.e. the effects of hardships on mental health and on sense of coherence, were calculated using linear regression models. The models were adjusted for gender, age, vocational education and duration of unemployment.

*Moderator effects.* To calculate the moderator effects of SOC on the relationship of hardships and mental health, linear regression analysis was used. In the first step the control variables, and in the second step the predictor variable (hardships), were included in the equation. In the third step, the moderator variable SOC, and in the fourth and final step, an interaction term (SOC  $\times$  predictor variable) was included in the equation. By estimating the moderator effects, the considerations of Albertsen, Nielsen and Borg (2001) were followed: If the interaction term is a significant predictor of the outcome variable and if the F-value of the model significantly changes, a moderator effect is identified<sup>4</sup>.

*Mediator effects.* Mediator effects were calculated following the recommendations of Baron and Kenny (1986). In the causal step method estimating mediator effects four requirements have to be fulfilled: first, the predictor variables (hardships) must be correlated with the outcome variable (mental health) (path *c*). Second, the predictor variable must be correlated with the mediator variable (SOC) (path *a*). Third, the mediator must affect the outcome variable when the model is controlled for the effects of predictor variable (path *b*). Fourth, the correlation between the predictor variable and the outcome must be zero (complete mediation) or reduced (partial mediation) when the mediator variable is included into the equation (path *c'*). In the mediator analyses linear regression was used. To estimate whether the mediator effect is statistically significant, Sobel's test was applied (Sobel, 1982).

### **3.3 Results**

#### **3.3.1 Analyses of Attrition**

Analyses of attrition revealed no significant differences between respondents and dropouts with regard to the following T1 variables: sense of coherence, psychological distress, impaired work ability, problem drinking, and duration of unemployment. However, among the respondents females were more frequent than among the drop-outs (67.3 % vs. 49.6 %,  $p=.007$ ). The respondents were also older than the drop-outs (mean age 40.02 years vs.

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<sup>4</sup> While calculating the moderator effects I centered the predictor variables and the moderator variable SOC to avoid the problems caused by multicollinearity, as has been recommended by Cohen, Cohen, West and Aiken (2003, pp. 267). The results were nevertheless identical with the results calculated with the non-centered variables. Therefore, only the results calculated with the non-centered variables will be shown.

33.98 years,  $p=.000$ ). Compared with drop-outs the respondents had longer vocational education measured in years (1.42 years vs. 0.92 years,  $p=.004$ ). Even though significant differences between respondents and drop-outs were revealed, it is important to note that this dropout is only related to demographic variables (gender, age, and education) which were used as control variables in the equations. Hence, as the research questions of this study are not specific to age, gender or education, the differences between respondents and drop-outs will be of lesser importance (Goodman & Blum, 1996). Furthermore, the final sample was not representative concerning the predictor variable financial strain, as the respondents experienced lower strain than did the drop-outs (11.66 vs. 12.80,  $p=.021$ ) (financial strain ranges from 4=low to 20=high strain). However, even more important than representativeness is the variation of the variable which was almost the same in the final sample as it was in the whole T1 population<sup>5</sup>.

### 3.3.2 Correlations

Bivariate correlations of the variables included into the analyses are shown in Table 8. All hardship variables correlated significantly negatively with SOC: The correlation between impaired work ability and SOC was  $-.45$  ( $p=.000$ ), between problem drinking and SOC  $-.31$  ( $p=.002$ ), and between financial strain and SOC  $-.33$  ( $p=.001$ ). The correlations between the baseline hardship variables and the outcome variable psychological distress at T2 were significant and positive: The correlation between impaired work ability and psychological distress was  $.38$  ( $p=.000$ ), between problem drinking and distress  $.25$  ( $p=.013$ ), and between financial strain and distress  $.25$  ( $p=.014$ ). All hardship variables correlated significantly positive with each other as well. Baseline SOC was negatively correlated with psychological distress measured at T2 ( $-.38$ ,  $p=.000$ ).

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<sup>5</sup> The variance of the variable financial strain was  $s^2=13.84$  for the whole T1 population ( $N=230$ ) and  $s^2=14.06$  for the final sample ( $N=98$ ).

Table 6. Means, standard deviations, and Pearson's correlation coefficients of the study variables

	Mean	SD	1	2	3	4	5	6	7	8	9
			N=98	N=98	N=95	N=98	N=91	N=98	N=98	N=98	N=98
1. Sex <sup>1</sup>	0.67	0.47	--								
2. Age <sup>2</sup>	40.02	11.34	.03	--							
3. Duration of unemployment <sup>3</sup>	0.57	0.50	-.14	.38**	--						
4. Vocational education <sup>2</sup>	1.92	1.76	.04	.06	.21*	--					
5. Impaired work ability at T1 <sup>4</sup>	18.48	7.77	-.17	.31**	.21*	-.05	(.82)				
6. Problem drinking at T1 <sup>5</sup>	0.19	0.40	-.10	-.01	.13	-.02	.14	--			
7. Financial strain at T1 <sup>6</sup>	11.66	3.75	-.19	.06	.21*	-.20*	.31**	.24*	(.81)		
8. Sense of coherence at T1 <sup>7</sup>	57.71	12.42	.16	.01	-.03	-.02	-.45**	-.31**	-.33**	(.87)	
9. Psychological distress at T2 <sup>8</sup>	25.00	7.27	-.11	.19	.27**	.11	.38**	.25*	.25*	-.38**	(.93)

Note. <sup>1</sup>1=female, 0=male, <sup>2</sup>in years, <sup>3</sup>1=long-term unemployment, 0=short-term unemployment, <sup>4</sup>level of impairment: 7=low to 50=high, <sup>5</sup>1=yes, 0=no, <sup>6</sup>4=low to 20=high, <sup>7</sup>13=low to 91=high, <sup>8</sup>12=low to 48=high

\*  $p < .50$ , \*\*  $p < .01$

### 3.3.3 Hardships affect sense of coherence

As Baron and Kenny (1986) have recommended, first the paths from the predictor variables to the intervening variable SOC (path *a*) were examined. Three separate models were calculated with impaired work ability, problem drinking, or financial strain as the predictor.

In the first model, the effect of impaired work ability on sense of coherence was calculated. As expected, impaired work ability was negatively associated with SOC (Table 7) ( $p=.000$ ); persons with impaired work ability had lower SOC level than their counterparts with good work ability. Furthermore, in this model, the individual's age was a marginally significant ( $p=.087$ ) predictor of SOC. Older age was associated with stronger SOC, a finding which is in line with the theory of Antonovsky (1987a).

Table 7. *Linear regression: Impaired work ability as a predictor of sense of coherence*

T1 Predictors		Sense of coherence T1 <sup>1</sup> (N=98)	
		$\beta$	<i>p</i>
Control variables	Sex <sup>2</sup>	.08	.418
	Age <sup>3</sup>	.19	.087
	Duration of unemployment <sup>4</sup>	.05	.630
	Vocational education <sup>5</sup>	-.08	.401
Predictor variable	Impaired work ability T1 <sup>6</sup>	-.52	.000
	<i>R</i>	.51	
	<i>R</i> <sup>2</sup>	.26	
	Adjusted <i>R</i> <sup>2</sup>	.21	

Note. <sup>1</sup>13=low to 91=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>in years, <sup>6</sup>level of impairment: 7=low to 50=high

Second, the effect of problem drinking on SOC was tested. Problem drinking was associated with low SOC ( $p=.005$ ) (Table 8). This finding is in line with earlier research findings reporting lower SOC levels for persons with alcohol problems and hazardous alcohol consumption (e.g. Midanik et al., 1992; Neuner et al., 2006; Ristkari et al., 2005).

Table 8. *Linear regression: Problem drinking as a predictor of sense of coherence*

T1 Predictors		Sense of coherence T1 <sup>1</sup> (N=98)	
		$\beta$	<i>p</i>
Control variables	Sex <sup>2</sup>	.11	.294
	Age <sup>3</sup>	.01	.901
	Duration of unemployment <sup>4</sup>	.03	.790
	Vocational education <sup>5</sup>	-.06	.548
Predictor variable	Problem drinking T1 <sup>6</sup>	-.29	.005
	<i>R</i>	.32	
	<i>R</i> <sup>2</sup>	.10	
	Adjusted <i>R</i> <sup>2</sup>	.05	

Note. <sup>1</sup>13=low to 91=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>in years, <sup>6</sup>1=problem drinking, 0=no drinking problems

Third, the effect of financial strain on SOC was tested. As assumed, experienced financial strain was adversely associated with SOC ( $p=.002$ ) (Table 9); individuals experiencing severe financial strain had lower SOC levels than their counterparts without financial problems. This result corresponds with the findings of Starrin et al. (2001) reporting lower SOC levels for persons facing great financial hardship during unemployment.

Table 9. *Linear regression: Financial strain as a predictor of sense of coherence*

T1 Predictors		Sense of coherence T1 <sup>1</sup> (N=98)	
		$\beta$	<i>p</i>
Control variables	Sex <sup>2</sup>	.08	.438
	Age <sup>3</sup>	.04	.698
	Duration of unemployment <sup>4</sup>	.07	.538
	Vocational education <sup>5</sup>	-.14	.185
Predictor variable	Financial strain T1 <sup>6</sup>	-.36	.001
	<i>R</i>	.37	
	<i>R</i> <sup>2</sup>	.13	
	Adjusted <i>R</i> <sup>2</sup>	.09	

Note. <sup>1</sup>13=low to 91=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>in years, <sup>6</sup>4=low to 20=high

In conclusion, the results confirmed the hypothesis that experienced hardships were associated with low SOC levels during unemployment. Note that both hardships and SOC

were measured at the baseline, thus no firm conclusions about causal relations can be made. The first precondition for calculating indirect effects, i.e. the relationship between predictor variable and intervening variable (path *a*), was fulfilled.

### **3.3.4 Mediator and moderator effects of sense of coherence in the relationship between impaired work ability and psychological distress**

The mediator and moderator analyses were calculated using linear regression analysis. In the first step only the control variables were included into the model (Table 10). The control variable duration of unemployment turned out to be a significant ( $p=.045$ ) predictor of future psychological distress: Long duration of unemployment predicted greater mental distress at the follow-up. The effect remained significant when the predictor variable and SOC were added into the model. The effect of long-term unemployment on mental distress was at least marginally significant throughout all models with either problem drinking or financial strain as predictors. Even though the effect was not expected in this study, it is in line with earlier findings reporting greater distress levels for long-term unemployed persons (e.g. Paul, 2005).

In the second step the predictor variable impaired work ability was added into the model. As expected, impaired work ability was a highly significant ( $p=.002$ ) predictor of future psychological distress: Poor work ability predicted great distress at the follow-up.

In the third step SOC was added into the equation. SOC was a highly significant ( $p=.006$ ) predictor of psychological distress at T2. The relationship was negative, i.e. strong SOC predicted low distress levels, a finding which confirmed the proposed hypothesis.

When SOC was included in the model, impaired work ability was no longer a significant predictor of future psychological distress, indicating a mediator effect by SOC. Sobel's test confirmed that the mediator effect of SOC in the relationship of problem drinking and psychological distress was statistically significant ( $z=2.47, p=.014$ ).

To estimate a moderator effect by SOC, an interaction term (SOC  $\times$  impaired work ability) was added into the model (Table 10). As the interaction term was included in the model no significant changes in the F-value could be detected. The interaction term was not a significant predictor of psychological distress at T2. Therefore, the hypothesis that SOC moderates the relationship of impaired work ability and psychological distress found no support.

Table 10. Linear regression: Relationships between impaired work ability and psychological distress testing SOC as a mediator and moderator of the relationships

	Psychological distress T2 <sup>1</sup> (n = 98)							
	Step 1		Step 2		Step 3		Step 4	
	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
Sex <sup>2</sup>	-.07	.491	-.02	.827	-.00	.980	-.00	.126
Age <sup>3</sup>	.09	.417	.01	.931	.05	.660	.05	.979
Duration of unemployment <sup>4</sup>	.24	.045	.21	.069	.22	.042	.23	.670
Vocational education <sup>3</sup>	.04	.718	.07	.498	.04	.658	.05	.041
Impaired work ability T1 <sup>5</sup>			.34	.002	.18	.131	.18	.641
SOC T1 <sup>6</sup>					-.31	.006	-.31	.006
SOC x Impaired work ability							.03	.738
Adjusted R <sup>2</sup>	.06		.15		.22		.21	
df/F	83/2.3		82/10.1		81/8.0		80/0.1	
Sig. F	.067		.002		.006		.738	
	Sobel test							
	$z$		$p$					
	2.47		.014					

Note. <sup>1</sup>12=low to 48=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>level of impairment: 7=low to 50=high, <sup>6</sup>13 weak to 91 strong

### 3.3.5 Mediator and moderator effects of sense of coherence in the relationship between problem drinking and psychological distress

As hypothesised, baseline problem drinking was a significant ( $p=.015$ ) predictor of psychological distress at T2: Problem drinking was associated with greater distress levels at the follow-up (Table 11).

In the next step SOC was included into the model. Strong SOC predicted low psychological distress at the follow-up ( $p=.001$ ). As SOC was added into the equation, the effect of problem drinking on psychological distress was no longer significant. The result indicated that SOC had a mediating effect in the relationship of problem drinking and distress. The Sobel test confirmed that the mediator effect of SOC was significant ( $z=2.21, p=.027$ ).

To test for a moderator effect of SOC, an interaction term (SOC  $\times$  problem drinking) was added into the equation (Table 11). The interaction term was not a significant predictor of the outcome variable psychological distress, nor was the change in F-value significant. Therefore, no support for the moderating effect of SOC in the relationship of problem drinking and psychological distress was found.

Table 11. *Linear regression: Relationships between problem drinking and psychological distress testing SOC as a mediator and moderator of the relationships*

	Psychological distress T2 <sup>1</sup> (N = 98)							
	Step 1		Step 2		Step 3		Step 4	
	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
Sex <sup>2</sup>	-.09	.362	-.08	.441	-.04	.668	-.05	.580
Age <sup>3</sup>	.12	.277	.15	.171	.15	.135	.16	.113
Duration of unemployment <sup>4</sup>	.20	.084	.15	.169	.16	.121	.16	.142
Vocational education <sup>3</sup>	.06	.559	.07	.471	.05	.587	.04	.651
Problem drinking T1 <sup>5</sup>			.25	.014	.15	.128	.08	.450
SOC T1 <sup>6</sup>					-.34	.001	-.29	.008
SOC x Problem drinking							-.15	.217
Adjusted R <sup>2</sup>	.05		.11		.20		.21	
df/F	90/2.3		89/6.3		88/11.9		87/1.5	
Sig. F	.065		.014		.001		.217	
	Sobel test							
	$z$		<i>p</i>					
	2.21		.027					

Note. <sup>1</sup>12=low to 48=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>1=problem drinking, 0=no drinking problems, <sup>6</sup>13 weak to 91 strong

### 3.3.6 Mediator and moderator effects of sense of coherence in the relationship between financial strain and psychological distress

The effect of baseline financial strain on T2 psychological strain was tested. As hypothesised, high financial strain at T1 predicted great psychological distress at the follow-up ( $p=.038$ ) (Table 12).

To test for a mediator effect of SOC in this relationship, SOC was added into the equation in the third step. SOC T1 was a highly significant ( $p=.001$ ) predictor of psychological distress at T2 and strong SOC predicted low distress level.

When SOC was entered into the model, the effect of financial strain on psychological distress was no longer significant indicating mediator effect by SOC. Sobel's test confirmed that the mediator effect of SOC was significant ( $z=2.43, p=.015$ ). This finding confirmed the proposed hypothesis.

The moderating effect of SOC was tested by adding the interaction term SOC  $\times$  financial strain into the model (Table 12). The change in the F-value was not significant, nor was the

interaction term a significant predictor of psychological distress. Therefore, the hypothesis that SOC would protect individuals from the effects of financial strain on psychological distress had to be rejected.

Table 12. *Linear regression: Relationships between financial strain and psychological distress testing SOC as a mediator and moderator of the relationships*

	Psychological distress T2 <sup>1</sup> (N = 98)							
	Step 1		Step 2		Step 3		Step 4	
	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>	$\beta$	<i>p</i>
Sex <sup>2</sup>	-.09	.362	-.06	.532	-.04	.708	-.04	.704
Age <sup>3</sup>	.12	.277	.12	.257	.14	.179	.15	.148
Duration of unemployment <sup>4</sup>	.20	.084	.14	.218	.17	.127	.15	.164
Vocational education <sup>3</sup>	.06	.559	.12	.265	.07	.493	.07	.480
Financial strain T1 <sup>5</sup>			.22	.038	.10	.362	.13	.221
SOC T1 <sup>6</sup>					-.35	.001	-.34	.001
SOC x Financial strain							-.13	.166
Adjusted R <sup>2</sup>	.05		.09		.19		.20	
df/F	90/2.3		89/4.4		88/12.2		87/2.0	
Sig. F	.065		.038		.001		.166	
	Sobel test							
	$z$		<i>p</i>					
	2.43		.015					

Note. <sup>1</sup>12=low to 48=high, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>4=low to 20=high, <sup>6</sup>13 weak to 91 strong

### 3.4 Discussion

The aim of the current study was to investigate sense of coherence as a potential moderator and mediator of the relationships between hardships and psychological distress during unemployment. The results from regression analyses show that SOC acted as a mediator but not as a moderator of these relationships. In other words, low SOC transmitted the effects of hardships on unemployed persons' mental health.

In addition to indirect effects main effects were also found. It was shown that experienced hardships predicted high psychological distress during unemployment. Impaired work ability measured at the baseline was associated with high distress levels at the follow-up six months later. This result provides new information about the mental health deteriorating factors during job-loss, since to the best knowledge of the author no earlier study has investigated the

role of work ability in mental well-being among unemployed persons. Furthermore, problem drinking and high financial strain reported at the baseline were associated with high psychological distress at the follow-up, results that support several earlier findings (Creed & Bartrum, 2008; Creed & Klisch, 2005; Creed et al., 2001; Frese, 1987; Hämäläinen et al., 2005; Kirchler & Kirchler, 1989; Leana & Feldman, 1990, 1995; McKee-Ryan et al., 2005; Price et al., 1992; Rantakeisu et al., 1999; Viinamäki et al., 1993a; Viinamäki et al., 1993b; Vinokur & Schul, 2002; Vuori & Vesalainen, 1999).

These results draw attention to the negative health effects caused by hardships among unemployed persons. It should be considered how these harmful effects could be alleviated through supportive interventions. Rehabilitation services, support for alcohol dependant persons and a reasonable income level during job disruption would decrease mental problems among the unemployed. Alleviating harmful health effects is important because we know that severe psychological distress not only causes mental suffering, but also seems to prolong unemployment (Hamilton et al., 1993; Paul, Hassel, & Moser 2006; Schaufeli & van Yperen, 1992; Vinokur & Schul, 2002). If no preventative measures are taken, unemployed individuals suffering from severe distress caused by hardships are at risk of exclusion from the labor market.

In regression analyses an additional main effect was found: Long duration of unemployment, which was used as a control variable in the equations, predicted high levels of psychological distress at T2. The result was unexpected but in line with earlier results reporting increasing mental problems when unemployment is prolonged (e.g. Jackson & Warr 1984; Paul et al., 2006; Viinamäki et al., 1993). This might be both because of repeated failures in job-search and increasing hopelessness regarding reemployment and also because of exhausting of personal resources, for example savings. Thus, long duration of unemployment can be seen as a special stress factor exacerbating the mental ill-health during job disruption. Intensive support for long-term unemployed persons should be provided in order to respond to their special needs.

Besides mental health impairing factors also a protective factor was found. Baseline strong sense of coherence predicted low distress levels at the follow-up. This finding accomplishes the previous cross-sectional findings showing similar effects. In the study of Leino-Loison et al. (2004) with unemployed nurses, strong SOC was associated with good general health. In their study with former factory workers Hanse and Engström (1999) reported that among strong SOC jobless persons, the prevalence of physical and psychological symptoms was

lower than among weak SOC unemployed persons. Hence, strong SOC can be seen as a protective factor against psychological distress during unemployment.

The results from regression analysis revealed that SOC was associated with experienced hardships as well. Impaired work ability was related to weak SOC, which was a finding in line with the results of Väänänen-Tomppo, Janatuinen and Törnqvist (2001). Nevertheless, the current study is the first one reporting the relationship of work ability and SOC among *unemployed* individuals. Furthermore, the findings of this study show that drinking problems are also associated with weak SOC among unemployed persons which is the case with other respondent groups as well (Midanik et al., 1992; Neuner et al., 2006; Ristkari et al., 2005). The results of Starrin et al. (2001) were confirmed, since high financial strain was associated with weak SOC among unemployed individuals of this study as well. In sum, it was confirmed that experienced hardships during job disruption not only increase experienced psychological distress, but also deteriorate a person's central resistance resource SOC.

The main aim of this study was, however, to investigate the indirect effects of SOC. It was hypothesized that SOC would act as a moderator in the relationship of hardships and psychological distress. This assumption was made, since according to Antonovsky (1979, 1987a), strong SOC can have a buffering effect against stressors. Also earlier empirical studies have shown SOC to act as a moderator in stressor – stress reactions relationships (Albertsen et al., 2001; Feldt, 1997; Hanse & Engström, 1999; Kinman, 2008; Nielsen et al., 2008). Nevertheless, in this study no moderating effects of SOC in the relationship of hardships and psychological distress could be found. Conversely, the results from regression analysis showed that SOC had a mediating effect in those relationships. This finding is in line with earlier empirical findings showing low SOC transmitting the effects of stressors on health and well-being (e.g. Høgh & Mikkelsen, 2005). Antonovsky (1987a) further argues that the development of SOC will follow its earlier direction: Strong SOC persons tend to increase their SOC, whereas low SOC persons will continue decreasing their SOC levels. If this assumption is true, it would mean that unemployed persons experiencing hardships are in danger of constantly deteriorating resistance resource SOC and considerably increasing distress levels.

There may be several explanations as to why no support for the moderator hypothesis but full support for the mediator hypothesis was found. In chapter 2 it was shown that SOC can be changed through a supportive intervention and through a positive life event. This result supported earlier empirical findings showing SOC to be mutable (e.g. Lillefjell & Jacobsen,

2007; Weissbecker et al., 2002) and contradicted studies which had supposed SOC to remain stable over time (Eriksson & Lindström, 2005; Feldt et al., 2000b; Schnyder et al., 2000). Hence, because we already have evidence that shows SOC to be flexible and reactive to external factors, it is more plausible that SOC acts as a mediator and not as a moderator in the relationships of two other variables. Moderation means that a third variable changes the relationship between two other variables and no assumptions of correlations between predictor variable and the moderator are made (Baron & Kenny, 1986). Mediation, on the contrary, supposes that the intervening variable co-varies with the predictor variable, which also was the case in this study: Impaired work ability, problem drinking and financial strain affected SOC.

It should be noted that the current study had some limitations. Since hardship variables and SOC were both measured at the same point in time (T1), it can neither be said whether the relationship of hardships and SOC is causal or not, nor which direction this causality would have. The theory of Antonovsky (1979, 1987a) gives support for both assumptions: On one hand stress factors are assumed to be able to damage an individual's SOC and even a strong SOC may undergo temporary declines. On the other hand individuals who have a weak SOC experience more stress factors in their lives because they define everyday hassles as stressors and not as harmless events. It is thus possible that experienced hardships damaged unemployed persons' SOC, which assumption would be in-line with the finding that SOC acted as a mediator in hardships-distress relationships. It is also possible that unemployed persons whose SOC was weak anyway (see comparison with other groups in chapter 2) defined hassles they experienced as stressful problems, an explanation which would also account for the association between hardship factors and SOC. Thus, it is possible that hardships and SOC co-vary with each other, but the relationship of the two factors is not a causal one. It is also possible that there is a causal relationship between the two variables, but one of reversed order, i.e. low SOC causes experienced hardships and not vice versa, as was hypothesized.

In conclusion, weak SOC seems to be an important psychological factor underlying the negative effects of hardships on mental well-being during unemployment. The results highlight the importance of reducing hardship factors during unemployment, since such factors can damage an individual's central stress resistance resource SOC which in turn has negative effects on mental well-being. Providing sufficient financial support as well as rehabilitation services to increase jobless persons' work ability and to decrease problem

drinking would disburden individuals' sense of coherence and in turn facilitate their mental health. The fact that SOC mediates the effects of hardships on mental well-being can also be interpreted in the way that hardships cause mental distress *because* of weak SOC. This interpretation draws attention to the importance of strong resistance resources during stressful life periods, such as unemployment.

## **4 Duration of unemployment as a moderator of the relationships of hardships, sense of coherence and psychological distress**

### **4.1 Background and hypothesis**

In the previous chapter it was shown that sense of coherence has a mediating effect on the relationship of hardships and psychological distress during unemployment. Experienced hardships are associated with high psychological distress because sense of coherence transmits the effects on mental health. But does the effect of SOC on stress reactions during unemployment remain constant under every circumstance? Could it be possible that the occurrence of such effects depends on certain conditions?

It has been hypothesized that the effects of personality dispositions, such as SOC, on individual's reactions to stimuli can be moderated by situational factors. In some instances personality is more pronounced, whereas in others the situation matters the most (Endler & Parker, 1992). According to Mischel (1977) situations can be divided into weak and strong situations. In weak situations a person's behavior is likely to reflect the individual's personality traits, since the situation itself does not provide clear signals of how to behave. A characteristic of strong situations is that the options for differential behavior are restricted because the situation provides clear signals about what is expected and what kind of behavior or reaction is appropriate. It has been shown, for example, that in novel situations (Zimbardo, 2007) or in salient situations (Marshall & Brown, 2006) situational factors can overwhelm the effect of personality on individual's reactions. Also the acuteness of a situation, especially under stressful conditions, can override individual differences in persons' behavior (Everly, Flannery & Mitchell, 2000; Everly & Mitchell, 1997). In sum, the effects of personality dispositions on an individual's reactions are likely to be strong in weak situations, whereas a strong situation limits the expression of one's personality and drives individuals to uniform reactions.

The condition that might affect the relationships of hardships, SOC and psychological distress is duration of unemployment: whether one has recently lost one's job or has been unemployed already for a longer time. Recent job-loss can be seen as an acute stress and crisis situation, whereas longer period out of work can be considered as chronic stress (e.g. Jackson & Warr, 1984; Warr & Jackson, 1985; Warr & Jackson, 1987). It can be expected that during acute

stress immediately following job-loss individual differences in reactions to stressors may diminish or even disappear. As the stress becomes chronic, the impact of personality factor, i.e. SOC, on individuals' stress responses may increase.

The theoretical framework about the differential functioning of personality variables in acute vs. chronic stress has been tested in empirical studies with respondents living through major stress situations. Roskies, Louis-Guerin and Fournier (1993) tested the effects of both negative (trait anxiety) and positive (sense of coherence) personality dispositions with two samples of employees, of which one was experiencing acute job insecurity because of recent personnel cuts and threatened company closure, and the other long-term job insecurity without immediate risk of lay-offs. The aim of the study was to predict perceived job security risk by two other factors, i.e. objective job security risk and individuals' personality. In the group experiencing acute job insecurity, an individuals' personality did not predict perceived job security risk but objective job threat was the only significant predictor. In the other group experiencing long-term job insecurity without acute threats of job-loss, an individuals' personality, i. e. sense of coherence, was the best predictor of perceived job security risk: The stronger a person's SOC, the less perceived risk. Roskin et al. (1993) conclude that the role of an individual's personality in predicting perceived job threat is not uniform but can differ across situations. The fact that both objective job security risk and perceived job security risk were measured with different, although similar kinds of measurements can be seen as a weakness of the Roskin and colleagues study. Thus, it is not quite certain whether the different results are due to different reactions of respondents or moreover due to differences in the measurement scales.

In the study of Sagy and Antonovsky (1986) adolescents being evacuated from unsafe living areas in Israel were examined. The researchers found no connection between personality characteristics and emotional stress reactions, i.e. state anxiety and state anger, in the group experiencing acute stress. As the acuteness of the stress decreased, the connection between the stress reactions and personality was found. The amount of explained variance by personality factors in stress reactions increased from 0 % (acute stress) to 38 % (chronic stress).

In a more recent study by Sagy (2002) with adolescents experiencing the results of political disturbances in Israel, a similar effect was found. At the time of the study, the Palestinian uprising against Israeli occupation had become a chronic stress situation, whereas the assassination of the Israel's prime minister had caused an acute crisis in the Israeli community. Two groups of adolescents were investigated at different points in time - during

chronic or acute stress - and were compared. It was found that personality dispositions, including sense of coherence, explained a relatively high amount of the variance in the chronic stress group but not in the acute stress group. In conclusion, in acute stress situations, personality variables have lower explanatory power on stress reactions than in chronic stress situations.

A further question is where to draw the line between acute and chronic stress in the case of unemployment. Unemployment research (e.g. Brenner & Starrin, 1988; Jackson & Warr, 1984; Warr & Jackson 1985; Warr & Jackson, 1987) has shown that a sudden job-loss causes an acute crisis which reaction is indicated by sharply increasing distress levels. Later on, as unemployment is prolonged and the situation becomes chronic, adaptation to the situation with stabilizing distress levels follows. On the basis of a recent meta-analysis (Paul & Moser, 2009), we know that distress levels of unemployed persons tend to stabilize towards the end of the first year without employment. Therefore, it can be hypothesized that after one year following job-loss, the incident loses its acute nature and turns into a state of chronic stress. A further reason for dividing the duration of unemployment into two groups over 12 months is that in labor market policy unemployment duration less than 12 months is also considered as short-term unemployment and a duration of one year or longer as long-term unemployment. In Finland, a job-seeker considered as a long-term unemployed receives more intensive counseling from the employment office, whereas his or her unemployment benefit decreases from salary based insurance to a basic allowance.

To conclude, it will be investigated whether the personality disposition SOC has differential effects on an individual's stress reactions in case of short vs. long-term unemployment. Duration of unemployment is expected to function as a moderator affecting the relationship between SOC and psychological distress. The following hypothesis is formulated (Figure 7):

*The mediating effect of sense of coherence on the relationships of hardships (impaired work ability, problem drinking and financial strain) and psychological distress is moderated by the duration of unemployment.*

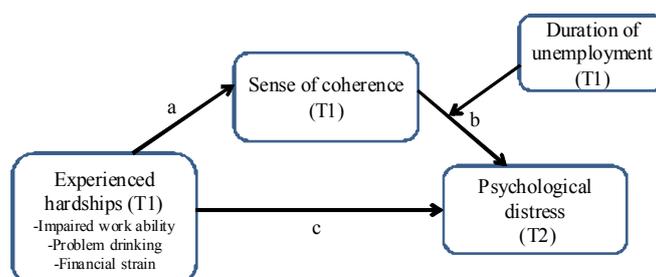


Figure 7. Conditional indirect effect-model

## 4.2 Statistical methods

*Conditional indirect effects.* While calculating the conditional indirect effects the recommendations of Preacher, Rucker and Hayes (2007) were followed. The calculations were made by using the SPSS macro provided by Hayes (2008). The research model of this study is equivalent to model 3 presented in the paper of Preacher et al. (2007). It is assumed that the moderator (duration of unemployment) affects the path *b*, i.e. the path between the mediator (SOC) and the outcome variable (psychological distress). The moderator variable duration of unemployment was dummy coded (1=unemployment duration 12 months and over,  $n=54$ , and 0=duration of unemployment less than 12 months,  $n=41$ ), corresponding to the definition by the employment office in Finland. To estimate the statistical significance of the conditional indirect effect, bootstrapping was used. Bootstrapping is a resampling technique used for constructing hypothesis tests.

## 4.3 Results

Three separate models were calculated with either impaired work ability, problem drinking or financial strain as hardship variables. In all models age, sex and vocational education were used as control variables.

### 4.3.1 Impaired work ability as a predictor variable

In the first model, the predictor variable was impaired work ability (Table 13). The interaction term SOC  $\times$  duration of unemployment emerged as a marginally significant ( $p=.069$ ) predictor of psychological distress at T2, indicating that the indirect effect of impaired work ability on psychological distress through SOC was moderated by duration of unemployment<sup>6</sup>.

Table 13 also shows the conditional indirect effect at specific values of the moderator. In the case of long-term unemployment (value 1) the effect was statistically significant ( $p=.005$ ), whereas for short-term unemployed (value 0) the effect was not significant. To test for

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<sup>6</sup> Note that even if in a traditional moderator analysis the interaction term must be a significant predictor of the outcome in order to establish a moderator effect this is not the case in conditional indirect effect analysis. For further information see Hayes (2008).

statistical significance of the effect at specific values (1 vs. 0), the bootstrapping option of the SPSS macro was used. As can be seen from Table 13, the bootstrapped results confirm that the indirect effect is statistically significant only in case of long-term unemployment ( $p=.017$ )<sup>7</sup>.

Table 13. *Linear regression: Long-term unemployment as a moderator of the relationships of impaired work ability, SOC and psychological distress*

<i>TI Predictors</i>	Dependent variable model			
	Psychological distress T2 <sup>1</sup>			
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	20.15	6.90	2.92	.005
Age <sup>2</sup>	0.05	0.07	0.67	.506
Sex <sup>3</sup>	0.20	1.56	0.13	.899
Vocational education <sup>2</sup>	0.10	0.41	0.23	.818
Impaired work ability <sup>4</sup>	0.15	0.11	1.33	.187
SOC <sup>5</sup>	-0.04	0.10	-0.37	.712
Duration of unemployment <sup>6</sup>	16.44	7.26	2.27	.026
SOC × Duration of unemployment	-0.23	0.12	-1.85	.069

Conditional indirect effects at specific values of the moderator

Duration of unemployment	Indirect effect	<i>SE</i>	<i>z</i>	<i>p</i>
1	0.22	0.08	2.78	.005
0	0.03	0.09	0.36	.717

Duration of unemployment	Boot indirect effect	Boot <i>SE</i>	Boot <i>z</i>	Boot <i>p</i>
1	0.23	0.10	2.39	.017
0	0.04	0.07	0.51	.612

*Note.* Unstandardized regression coefficients are presented. Bootstrap sample size = 5000.

<sup>1</sup>12=low to 48=high, <sup>2</sup>in years, <sup>3</sup>1=female, 0=male, <sup>4</sup>level of impairment: 7=low to 50=high, <sup>5</sup>13=low to 91=high, <sup>6</sup>1=long-term unemployment, 0=short term unemployment

<sup>7</sup> Bootstrapped indirect effect is the mean conditional indirect effect calculated across the bootstrap sample estimates ( $n=5000$ ) and the standard error of the conditional indirect effect as the standard deviation of those bootstrapped estimates. The  $z$ -value in the table is the ratio of the conditional indirect effect to the estimated standard error, and the  $p$ -value is based on the standard normal distribution (Hayes, 2008).

### 4.3.2 Problem drinking as a predictor variable

In the second model problem drinking was the predictor variable (Table 14). The interaction term SOC  $\times$  duration of unemployment was a marginally significant ( $p=.056$ ) predictor of psychological distress at T2 implying a moderator effect by unemployment duration. As the effects were examined at specific values of the moderator, it could be seen that in the case of long-term unemployment the indirect effect of problem drinking on psychological distress via SOC was statistically significant ( $p=.022$ ) but that this was not the case with short-term unemployment. The bootstrapped results confirmed that the findings were statistically significant also across bootstrapped samples.

Table 14. *Linear regression: Long-term unemployment as a moderator of the relationships of problem drinking, SOC and psychological distress*

<i>T1 Predictors</i>	Dependent variable model			
	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	21.49	6.43	3.34	.001
Age <sup>2</sup>	0.11	0.06	1.66	.101
Sex <sup>3</sup>	-0.55	1.47	-0.37	.711
Vocational education <sup>2</sup>	0.13	0.39	0.33	.739
Problem drinking <sup>4</sup>	2.74	1.85	1.48	.142
SOC <sup>5</sup>	-0.05	0.10	-0.45	.654
Duration of unemployment <sup>6</sup>	15.77	7.07	2.23	.028
SOC $\times$ Duration of unemployment	-0.23	0.12	-1.93	.056

Conditional indirect effects at specific values of the moderator				
Duration of unemployment	Indirect effect	<i>SE</i>	<i>z</i>	<i>p</i>
1	2.54	1.11	2.29	.022
0	0.41	0.98	0.42	.675

Duration of unemployment	Boot indirect effect	Boot <i>SE</i>	Boot <i>z</i>	Boot <i>p</i>
1	2.59	1.18	2.19	.028
0	0.43	0.78	0.55	.583

*Note.* Unstandardized regression coefficients are presented. Bootstrap sample size = 5000.

<sup>1</sup>12=low to 48=high, <sup>2</sup>in years, <sup>3</sup>1=female, 0=male, <sup>4</sup>1=problem drinking, 0=no drinking problems, <sup>5</sup>13=low to 91=high, <sup>6</sup>1=long-term unemployment, 0=short term unemployment

### 4.3.3 Financial strain as a predictor variable

In the third model, the predictor variable was experienced financial strain (Table 15). The statistically significant ( $p=.047$ ) interaction between SOC and duration of unemployment in the model for psychological distress implied that the indirect effect of financial strain on psychological distress through SOC was moderated by duration of unemployment. The results with specific values of the moderator confirmed that unlike short-term unemployment, the effect was significant in the case of long-term unemployment ( $p=.011$ ). The result was confirmed by the bootstrapped results.

Table 15. Linear regression: Long-term unemployment as a moderator of the relationships of financial strain, SOC and psychological distress

TI Predictors	Dependent variable model			
	Psychological distress T2 <sup>1</sup>			
	B	SE	t	p
Constant	19.60	7.39	2.65	.010
Age <sup>2</sup>	0.10	0.06	1.52	.133
Sex <sup>3</sup>	-0.45	1.49	-0.31	.761
Vocational education <sup>2</sup>	0.21	0.41	0.51	.614
Financial strain <sup>4</sup>	0.20	0.20	1.00	.319
SOC <sup>5</sup>	-0.04	0.10	-0.41	.683
Duration of unemployment <sup>6</sup>	16.40	7.10	2.31	.023
SOC × Duration of unemployment	-0.24	0.12	-2.02	.047

Conditional indirect effects at specific values of the moderator				
Duration of unemployment	Indirect effect	SE	z	p
1	0.32	0.13	2.55	.011
0	0.05	0.12	0.39	.697

Duration of unemployment	Boot indirect effect	Boot SE	Boot z	Boot p
1	0.32	0.13	2.41	.016
0	0.05	0.10	0.49	.627

Note. Unstandardized regression coefficients are presented. Bootstrap sample size = 5000.

<sup>1</sup>12=low to 48=high, <sup>2</sup>in years, <sup>3</sup>1=female, 0=male, <sup>4</sup>4=low to 20=high, <sup>5</sup>13=low to 91=high, <sup>6</sup>1=long-term unemployment, 0=short term unemployment

#### 4.4 Discussion

The aim of the analyses presented in this chapter was to investigate whether unemployment duration is a moderating factor in the relationships of hardships, SOC and stress reactions measured as psychological distress. It was hypothesized that the role of sense of coherence would be different in case of acute stress, i.e. among short-term unemployed than among long-term unemployed experiencing chronic stress.

In all models with either impaired work ability, or problem drinking or financial strain as predictor variables, the hypothesis was confirmed: Duration of unemployment was a significant moderator of the relationships of hardships, SOC and psychological distress. Furthermore, the indirect effect of hardships on psychological distress via SOC was measured at specific values of the moderator, i.e. in case of long vs. short-term unemployment. It can be concluded that the mediating effect of SOC in the hardships – distress relationship was significant only among long-term unemployed. This finding confirmed the theoretical assumption underlying this study: The effect of personality disposition on stress reactions depends on the quality of the stress situation. In the case of acute stress immediately following job-loss, an individual's personality does not contribute to stress reactions. In the case of chronic stress, on the contrary, personality dispositions do have an impact on experienced strain and act as an intervening variable between stressors and stress reactions.

This study brings new information about unemployment duration as a special moderator of stress reactions during unemployment. Recent job-loss seems to be a *strong situation* in the sense of Mischel (1977) which overwhelms the effects of personality, i.e. sense of coherence, and uniformly results in stress reactions among laid-off individuals. Therefore, one interpretation of the results of this study is that in the case of short-term unemployment hardships have direct effects on mental health resulting in severe distress. It is nevertheless possible that the effect of hardships on mental health is not a direct one among short-term unemployed persons either, but that the factor which transmits the effects of hardships to mental health is some other variable than SOC. Further research is required in order to find the mechanisms which are active in the case of short-term unemployment.

The results reported in this study should be also considered in the context of the ones reported by Sagy (2002). In her study, SOC was a significant predictor of stress reactions measured as psychological distress in the group experiencing chronic stress but not in the acute stress group. The results of the current study are in line with the findings of Sagy. Furthermore, in

Sagy's investigation another measure for stress reactions, state anxiety, was also used. The results concerning this measure were contradictory: SOC predicted state anxiety in the acute stress group, but not in the chronic stress group, as Sagy had expected. A possible interpretation of this result, assuming that no sample or measurement error took place, could be that the role of SOC does not depend only on the stress situation (acute vs. chronic stress) but also on the stress reaction measured (psychological distress vs. anxiety). Further investigation is needed in order to find out whether this could be the explanation for the different results. In sum, the current study seems to support the assumption that SOC has a differential function in the stressor – strain relationship depending on the acuteness of the stress situation.

Not all expectations regarding the results of the current study were fulfilled. Based on the findings presented in earlier research reports (Niemelä, 2002; Sagy 2002) I had expected to find a correlation between the personality factor SOC and the situational factor unemployment duration. In his study Niemelä (2002) reported that long-term unemployed had the lowest SOC levels compared to short-term unemployed and to employed peers. Also Sagy (2002) showed that among individuals experiencing chronic stress the SOC level was lower than among those experiencing acute stress. In this study SOC and unemployment duration were not correlated with each other. This could be due to a selection effect regarding the respondents. All respondents of this study were participants of intervention programs aimed at persons in special need for guidance during their job-search process. For example, persons with health complaints and restricted work ability were considered to be the target group of such interventions. As we know from earlier research (Hanse & Engström, 1999; Leino-Loison et al., 2004), sense of coherence is especially low among unemployed persons with health problems. Restriction in range of SOC scores could be the reason for the missing correlation between SOC and unemployment duration, since respondents' mean SOC score (57.71, SD 12.42) was significantly lower than the SOC score of Finnish general population (65.12, SD 11.31) ( $t=6.46, p<0.001$ ) or the one of employed Finns (66.06, SD 10.35) ( $t=7.94, p<0.001$ )<sup>8</sup>.

In conclusion, the findings of this study underline the necessity of recognizing short vs. long-term unemployment as different kinds of stress situations, i.e. as acute stress or as chronic stress. Depending on the acuteness of the job-loss, an individual's personality has a

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<sup>8</sup> Chapter 2 presents the sources from which the SOC scores of Finnish general population and employed Finns were derived.

differential effect on stress reactions caused by job disruption. In the case of long-term unemployment, sense of coherence acts as a mediator between hardships and psychological distress. In other words, among long-term unemployed persons, experienced hardships damage an individual's sense of coherence, which, in turn, increases experienced psychological distress. This finding underlines the importance of providing adequate support for the persons concerned by eliminating the presence of hardship factors from their lives. But as the analysis of conditional indirect effects showed this explanation is not applicable for short-term unemployed persons. Further investigation is needed to find out the mechanism through which hardship factors cause mental problems among those persons who have recently lost their employment.

## **5 Sense of coherence and changes in unemployed individuals' employment status**

### **5.1 Introduction**

The previous chapter of this dissertation presented the mechanisms of psychological coping with job disruption. Nevertheless, coping with unemployment does not only include psychological and health related factors, but also job-search efforts and reemployment success. Even though re-entry into labor market is the aim of most jobless persons, not all individuals find new employment after lay-off, not even those participating in back-to-work programs. In Finland, only 23 % of the participants of such programs find new employment right after the intervention (Itkonen & Lääperi, 2004). The question arises, who are the persons who succeed finding new jobs? Can predictors of positive employment outcomes be found?

In recent years, unemployment research has revealed that not only human capital, e.g. good education, knowledge or young age, is important for employment outcomes. Job-seekers' psychological resources, such as strong self-esteem and self-efficacy, also play an important role in returning to work (Kanfer et al., 2001). Thus, an individual needs strong psychological resources in order to get new employment after job-loss. Inasmuch as sense of coherence is seen as the central coping resource of an individual, the following question can be posed: Can an individual's sense of coherence predict changes in employment status?

Antonovsky's theory (1979, 1987a) of sense of coherence gives a reason to expect that SOC could be associated with reemployment success. The level of one's SOC is assumed to predict a person's coping behavior. Antonovsky (1987a) argues that on the basis of the strength of an individual's SOC it is not possible to predict his or her overt behavior (actions taken) in a certain situation, yet the quality of an individual's coping behavior can be predicted. Low SOC persons see challenging situations as chaotic and burdensome, and feelings of helplessness are typical for them. That is why they tend to react to stressful situations with withdrawal: They give up looking for solutions or for suitable resources for stress management or making sense of the circumstances. In case of job-search, it can be expected that weak SOC individuals soon lose their belief in reemployment and try to avoid the stress caused by job-search. Strong SOC persons can be expected to believe in their chances of

finding new job, even though job-search does not immediately result in reemployment. Furthermore, they can be assumed to have self-efficacy in regard to their job-search and to see the search process as a challenge rather than as a burden. Strong SOC individuals probably do not turn depressive or give up after the first unsuccessful attempts in getting new employment, since they still see their lives as meaningful and believe that their efforts will finally be rewarded. It can be assumed that strong SOC individuals are more likely actively to look for work, which is beneficial to reemployment success (Kanfer et al., 2001).

Assuming that the level of individual's SOC reflects one's attitudes and beliefs regarding employment prospects, we can assume that these expectations will show up in job interviews and in job search methods as well. A person who believes in his/her skills and expertise appears more attractive to an employer than a person who is insecure with his/her work performance or capability to return to work at all. A person having self-efficacy in regard to job-seeking does not only read newspaper ads for open vacancies but also looks for further employment possibilities by, for example, asking his/her social network for job opportunities. In sum, it can be assumed that the strength of an individual's SOC may determine employment outcomes of unemployed job-seekers: Strong SOC persons will find a new job more often than do their peers with a weak SOC.

These considerations find support in empirical findings hinting that an individual's SOC level predicts transitions from non-employment to employment. Earlier longitudinal studies investigating this phenomenon have all used samples of respondents with health problems and rehabilitation needs. In the study of Melin and Fugl-Meyer (2001) unemployed individuals with somatic disorders were interviewed during their participation in vocational rehabilitation. A follow-up interview was conducted two years later. The results indicate that initial strong SOC predicted positive outcome at the follow-up, i.e. employment or employability in contrast to sickness benefit, disability pension or ongoing rehabilitation. Moreover, sense of coherence was shown to be a more powerful predictor of employment outcome than the individual's health status.

In the studies of Hansen and colleagues (Hansen et al., 2005; Hansen et al., 2006) individuals on long-term sick leave were investigated. Strong sense of coherence predicted return to work after sick leave, whereas more of the weak SOC persons were still out of work at the follow-up. Contrary to these results, in the study of Lillefjell and Jacobsen (2007) with patients suffering from musculoskeletal pain, no significant association was found between SOC and work re-entry following multidisciplinary rehabilitation.

The results of Hanse and Engström (1999) also suggest a selection effect by SOC. In their cross-sectional study former factory workers filled in a questionnaire two years after the closing of an assembly plant. The results show that reemployed workers had higher SOC level than did the persons still out of work. The interpretation of these results can be that reemployment increases SOC level, but it is also possible that high SOC individuals found a job more often than their low SOC counterparts. In sum, regardless of the partly controversial results, earlier studies give a reason to believe that SOC is an important resource predicting return to work. Furthermore, sense of coherence seems to play a role also in other kind of work life transitions. In the study of Virtanen, Rantalaiho and Koivisto (2003) young physicians entering the labor market were investigated. Those female medical doctors who had low SOC level at the end of their studies had difficulties in entering the work force during the three year follow-up time after their graduation. Low SOC female physicians experienced several entries into labor market, i.e. moves from non-working situation to physician's work, whereas their strong SOC peers only had one or two entries.

In the Finnish study by Feldt, Leskinen and Kinnunen (2005) individuals working as technical designers were followed over a 5-year-period. The results showed that persons who experienced unemployment and lay-offs during the study period had weaker SOC, both at the baseline and at the follow-up, compared to persons who were employed throughout this period of time. The explanation for the lower SOC levels at T2 among persons with unemployment experiences can be that job-loss deteriorates an individual's central stress resistance resources and results in decreasing SOC levels. However, the result showing that persons who experienced job-loss during the study period already had lower SOC at the baseline, can also point out that initially weak SOC predicts unemployment and lay-off experiences, while strong baseline SOC is related to a stable career line. To conclude, earlier studies give a reason to believe that SOC could contribute to changes in a person's employment status.

Based on the theory by Antonovsky (1979, 1987a) and on the evidence provided by empirical results (Feldt et al., 2005; Hanse & Engström, 1999; Hansen et al., 2005; Hansen et al., 2006; Melin & Fugl-Meyer, 2001), it can be expected that individual's SOC level will predict employment outcomes of unemployed individuals participating in back-to-work programs (main effect). The following hypothesis was formulated:

Hypothesis 1: *Individual's SOC will predict employment outcomes of unemployed job-seekers; Strong SOC persons will find new jobs more often than weak SOC persons (Figure 8).*



Figure 8. Main effect-model

Supposing that a person's SOC predicts changes in employment status, further questions arise: How can such an effect take place? What kind of a mechanism could be responsible for that effect? One possible explanation is that SOC does not directly cause changes in employment situation, but rather helps to overcome possible obstacles of such changes. One of the most investigated factors hindering reemployment is poor mental health. For example, in a Dutch study with young unemployed individuals, persons with poor mental health were less likely to find a new job than their peers without mental problems (Taris, 2002). In the Norwegian studies of Claussen and colleagues (Claussen, 1999; Claussen, Bjorndal & Hjort, 1993) psychiatric diagnosis was associated with reduced chances of gaining new employment after job-loss, whereas a normal performance on psychometric testing was associated with increased chances of reemployment. Similar results also were reported in several other studies: Individuals who experience greater psychological distress or have more depressive symptoms are likely to stay unemployed, whereas a low distress level is associated with positive employment results (Hamilton et al., 1993; Paul, 2005; Paul & Moser, 2009; Schaufeli & van Yerpen 1992; Vinokur & Schul, 2002). It can be concluded that at least some mental health-related selection does occur in the labor market.

Furthermore, based both on Antonovsky's theory and on empirical findings it can be assumed that SOC could decrease mental distress experienced during and due to job-loss. Antonovsky (1979, 1987a) argues that sense of coherence forms the basis of person's health status. Depending on the strength of an individual's SOC, a movement on the ease-disease continuum will take place: Strong SOC persons are apt to move towards better health, whereas weak SOC persons are more often exposed to health problems and illnesses. Additionally to these theoretical considerations a review of empirical studies concluded that sense of coherence can predict both physical and mental health and that strong SOC facilitates

a person's health (Eriksson & Lindström, 2005). Therefore, it is plausible to assume that sense of coherence can also predict mental health among jobless individuals and that strong SOC will decrease experienced psychological distress during unemployment.

In sum, it can be hypothesized that SOC affects employment outcomes by decreasing individuals' psychological distress, which, in turn, increases the chances of gaining a new job. In other words, psychological distress can act as a mediator in the relationship of SOC and employment outcomes. The following hypothesis was formulated:

Hypothesis 2: *Experienced psychological distress mediates the relationship between sense of coherence and employment outcomes (Figure 9).*

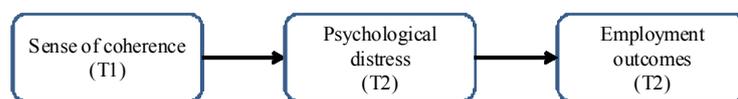


Figure 9. Mediator effect-model

## 5.2 Method

Information about the data collection procedures, intervention programs and the subjects is presented in chapter 3.

### 5.2.1 Measures

#### *Sense of coherence (T1)*

Sense of coherence was measured with the 13-item Orientation to Life Scale (Antonovsky 1987a) with the Finnish speaking version presented in chapters 2 and 3. Cronbach's alpha was 0.87 at T1.

#### *Psychological distress (T2)*

Psychological distress was assessed with the General Health Questionnaire (Goldberg & Hillier, 1979), similar as in previous analyses. Cronbach's alpha was 0.93 at T2.

### *Employment outcomes (T2)*

Employment outcomes at T2 were assessed by asking the respondent to indicate his or her current situation: Reemployed with or without financial assistance from the employment office, studying at a polytechnic or at vocational college, internship in an enterprise, participation in labor market training; unemployed without any ongoing activities; and other situations which turned out to be sick-leave or rehabilitation in all cases ( $n=5$ ). In the statistical analyses, the variable was dichotomized; reemployed with or without financial assistance and students were re-coded as “reemployed or student” (value=1). Other outcomes, i.e. continuous unemployment with or without active participation in labour market activities and sick-leave or rehabilitation were re-coded as “other situation” (value=0). It can be asked why students were put into the same category with reemployed persons. This solution is justified since persons who had started to study were no longer job-seekers or clients of employment offices or intervention program participants. One of the aims of the intervention programs in which the respondents took part was to support further education of persons without vocational education or with an out-of-date professional knowledge, and an intervention outcome of student status was seen as successful. Also earlier empirical findings give support to my solution of grouping students with reemployed persons: When psychological well-being is considered students can better be compared with employed than with unemployed individuals (Jackson, 1999; Paul & Moser, 2006).

### *Demographic Variables (T1)*

Demographics were assessed with standard survey questions for reporting sex, age, duration of unemployment and vocational education. Duration of unemployment was dichotomized (1=long-term unemployment;  $\geq 12$  months,  $n=54$ , 0=short-term unemployment;  $\leq 11$  months,  $n=41$ ). Vocational education was re-coded into years in vocational education (continuous variable).

## **5.2.2 Statistical methods**

Since the effect of T1 SOC on T2 psychological distress (path  $a$  of a mediator model) has already been tested in chapter three (see Tables 10, 11, and 12), in this chapter only the model presenting the effects of SOC on employment outcomes and the mediating effect of psychological distress on this relationship will be reported.

In the analysis of predictors of employment outcomes logistic regression was used. The analysis was calculated stepwise by adding first the demographic variables (age, sex, vocational education and duration of unemployment), then SOC and finally the distress variable to the equation.

Mediator effects were calculated following the instructions of Baron and Kenny (1986). The method is described in more detail in chapter 3. In order to test for statistical significance of the mediation effect, the Sobel-test was applied. Since in logistic regression the coefficients are not comparable across the equations, an additional procedure is required. The unstandardized coefficients were standardized using the method suggested by Kenny (2008).

In the calculations T1 SOC and T2 psychological distress were used. This was done in order to make sure that the model would be in line with the ones presented in chapters 3 and 4. There is also a further reason for this procedure: In case of a mediation effect, it is assumed that the predictor variable *causes* the mediator variable. Concerning the model in this study, certain time is required before SOC can decrease distress levels (see also Gollob & Reichardt, 1991; Cohen et al., 2003, p. 573)<sup>9</sup>.

## 5.3 Results

### 5.3.1 Employment outcomes at the follow-up

Employment outcomes were measured six months after the baseline measurement which was conducted as the participants first entered the intervention programs. Of the originally unemployed respondents ( $n=98$ ) approximately one third (30.6 %,  $n=30$ ) was no longer unemployed by T2 (Table 16). Of the respondents, 22.4 % ( $n=22$ ) were already reemployed, either with (14.3 %,  $n=14$ ) or without (8.2 %,  $n=8$ ) financial assistance for the employer from the employment office. The respondents' work contracts were all temporary. Eight persons (8.2 %) had started to study at a polytechnic or a vocational college.

The vast majority of the respondents, 69.4 % ( $n=68$ ), reported being still unemployed. Of these people, 13.3 % ( $n=13$ ) participated in labor market training and 6.1 % ( $n=6$ ) were

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<sup>9</sup> It can be asked why this recommendation was not followed in the earlier analysis presented in chapters 3 and 4. Following this recommendation SOC and psychological distress would have been measured at the same time point (T2). In that case the risk of common method bias would have been high, as earlier studies have shown SOC and distress to correlate so strongly with each other that a certain overlapping of the constructs cannot be excluded (see also the discussion on pages 92-93).

working as trainees in enterprises. Five respondents (5.1 %) reported being in rehabilitation or on sick leave at T2. All other respondents (44.9 %,  $n=44$ ) were still unemployed job-seekers without any special ongoing activity.

Table 16. *Employment situation at T2*

		<i>n</i>	%
Reemployed or student = 1	Employed	8	8.2
	Subsidized employment	14	14.3
	Student	8	8.2
Other situation = 0	Labor market training	13	13.3
	Internship in an enterprise	6	6.1
	Rehabilitation or sick-leave	5	5.1
	Unemployed	44	44.9
Total		98	100.0

### 5.3.2 Correlations

Bivariate correlations of the variables included in the analysis are shown in Table 17. Baseline SOC was positively correlated with employment outcomes at T2 ( $p=.021$ ); strong SOC was associated with reemployment and student status at the follow-up. Psychological distress at T2 was negatively correlated with employment situation ( $p=.000$ ); high distress correlated with continuous unemployment and being on sick-leave or in rehabilitation at the follow-up. Baseline SOC was negatively correlated with T2 psychological distress ( $p=.000$ ). The person's age, duration of unemployment or vocational education was not correlated with the employment situation at T2.

Table 17. *Means, standard deviations, and Pearson's correlation coefficients of the study variables*

	Mean	SD	1	2	3	4	5	6	7
			<i>N</i> =98	<i>N</i> =98	<i>N</i> =95	<i>N</i> =98	<i>N</i> =98	<i>N</i> =98	<i>N</i> =98
1. Sex <sup>1</sup>	0.67	0.47	--						
2. Age at T1 <sup>2</sup>	40.02	11.34	.03	--					
3. Duration of unemployment at T1 <sup>3</sup>	0.57	0.50	-.14	.38**	--				
4. Vocational education <sup>2</sup>	1.92	1.76	.04	.06	.21*	--			
5. Sense of coherence at T1 <sup>4</sup>	57.71	12.42	.16	.01	-.03	-.02	(.87)		
6. Psychological distress at T2 <sup>5</sup>	25.00	7.27	-.11	.19	.27**	.11	-.38**	(.93)	
7. Employment situation at T2 <sup>6</sup>	0.31	0.46	.13	-.10	.07	-.09	.23*	-.35**	--

Note. <sup>1</sup>1=female, 0=male, <sup>2</sup>in years, <sup>3</sup>1=long-term unemployment, 0=short-term unemployment, <sup>4</sup>13=low to 91=high, <sup>5</sup>12=low to 48=high, <sup>6</sup>1=employed or student, 0=other situation

\*  $p < .05$ , \*\*  $p < .01$

### 5.3.3 Psychological distress as a mediator of the relationship between SOC and employment outcomes

In the first step of the logistic regression, demographic variables were included in the equation (Table 18). None of the demographic variables, i.e. sex, age, vocational education or duration of unemployment were significant predictors of future employment outcomes. However, in the final model with predictor variable and mediator variable included, the duration of unemployment turned out to be a significant predictor ( $p=.040$ ) of the employment situation at T2. Unemployment duration was positively associated with employment situation: Long-term unemployment predicted reemployment or student status at T2 when the influence of SOC and distress was controlled.

In the second step, SOC was added to the model. SOC was a significant ( $p=.042$ ) predictor of T2 employment outcomes. Strong baseline SOC predicted reemployment or student status at the follow-up.

In the third step, the mediator variable psychological distress was included to the model. Psychological distress was a highly significant predictor ( $p=.003$ ) of T2 employment situation. As psychological distress was added to the model, the unstandardized  $b$  of the predictor variable SOC diminished from  $b=.040$  to  $b=.020$ , and the significance of  $b$  from  $p=.042$  to  $p=.345$ . The result indicates a mediator function of psychological distress in the relationship of SOC and employment situation. This finding confirmed the proposed hypothesis.

To estimate the amount of the mediator effect standardized regression coefficients were calculated by following the instructions of Kenny (2008). With regard to standardized regression coefficients, the impact of the predictor variable SOC was reduced by 57 % by psychological distress (standardized coefficients:  $\tau = 0.264$ ;  $\tau' = 0.113$ ), indicating partial mediation. The Sobel test confirmed that the effect was statistically significant ( $p=.017$ ).

Table 18. Logistic regression: Relationship between sense of coherence and time 2 employment status testing psychological distress as a mediator of the relationship

T1 Predictors	Employment situation at T2 <sup>1</sup> (N = 98)					
	Step 1		Step 2		Step 3	
	b	p	b	p	b	p
Sex <sup>2</sup>	0.78	.152	0.70	.209	0.74	.214
Age <sup>3</sup>	-0.04	.120	-0.04	.100	-0.03	.262
Duration of unemployment <sup>4</sup>	0.94	.101	0.99	.097	1.32	.040
Vocational education <sup>3</sup>	-0.20	.154	-0.19	.180	-0.18	.230
Sense of coherence <sup>5</sup>			0.04	.042	0.02	.345
Psychological distress <sup>6</sup>					-0.16	.003
Improvement of the model -2 logarithmic likelihood			$\chi^2(1)=4.42, .036$		$\chi^2(1)=11.75, .001$	
	110.691,		106.274,		94.527,	
	$\chi^2(4,91)=6.21$		$\chi^2(5,90)=10.63$		$\chi^2(6,89)=22.37$	
p value	.184		.059		.001	
	Sobel test					
	<u>z</u>		<u>p</u>			
	2.39		.017			

Note. The percentage of correct predictions for the final model was 74.7 %. b=unstandardized coefficients for each step.

<sup>1</sup>1=reemployed or student, 0=other situation, <sup>2</sup>1=female, 0=male, <sup>3</sup>in years, <sup>4</sup>1=long-term unemployment, 0=short-term unemployment, <sup>5</sup>13=low to 91=high, <sup>6</sup>12=low to 48=high

## 5.4 Discussion

This study had two aims. First, it tested whether a psychological factor, sense of coherence, would predict the future employment situation of unemployed persons participating in back-to-work programs. The results show that strong SOC at the baseline was associated with reemployment and student status at the follow-up. Second, it investigated through which mechanism SOC affects the employment outcomes. An analysis of indirect effects shows that the relationship of baseline SOC and T2 employment outcomes is mediated by T2 psychological distress.

These results can be criticized, because the outcome variable included both reemployed and students in the same category. However, common to both of these groups was that they were neither unemployed job-seekers, nor were they any longer clients of the employment office. The intervention projects considered that these persons had finished the back-to-work program with a positive end result. A further aspect is that there were only eight (8) persons who had started to study by T2, so that the sample size would have been too small to calculate

a separate analysis with this subgroup only. The solution of including reemployed and students in the same category is also justified in light of Jackson's (1999) results. He compared three employment groups, i.e. employed, unemployed and students and found that as psychological effects are considered, full-time education can be compared with reemployment. Furthermore, the review of Paul and Moser (2006) shows that the prevalence of psychological disorders and depression is about 9 percent among employed persons and 11 percent among students, but as high as 23 percent among unemployed persons.

A second critical point is that a relatively short follow-up time of six months was used. It can be argued that such a short follow-up time is not long enough for positive changes in intervention participants' employment status to occur. Since many participants need multiple kinds of support before they can even start looking for new jobs, a much longer time is needed before changes in the employment situation can be expected (Itkonen & Lääperi, 2004). In fact, only 8.2 % ( $n=8$ ) of the respondents of the current study had found a job without subsidies from the employment office. Nevertheless, it can be argued that, after a longer time out of work, even a subsidized job can be seen as a positive outcome of such a program.

In addition to the main results, one additional effect was found. As the predictor variable SOC and mediator variable psychological distress were added to the model, a control variable, duration of unemployment, turned out to be a significant predictor of the future employment situation. In other words, long-term unemployment predicted reemployment or student status at the follow-up six months later. This finding may appear surprising, since most of the studies have shown that long duration of unemployment hinders future reemployment (Wanberg, Hough, & Song, 2002; Warr & Jackson, 1984, 1985). But a plausible explanation for the results of this study can also be found. Prolonged unemployment also means running out of the resources one has at the beginning of unemployment, such as savings<sup>10</sup>. Greater financial need, then, can also serve as an additional motivator in job-search and boost job-search behaviour (Kanfer et al., 2001; Vinokur & Schul, 2002; Vuori & Vesalainen, 1999). A further explanation for the finding that long duration of unemployment is positively associated with reemployment is the fact that subsidies for employers from employment offices are higher in the case of long-term unemployed than in the case of short-term unemployed persons (Ministry of Employment and the Economy, 2009). This kind of support for employers could make the hiring of long-term unemployed more desirable. So, the result

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<sup>10</sup> The correlation of unemployment duration and financial strain in this sample was .21,  $p < .05$ .

that a longer period of unemployment predicts positive and not negative employment outcomes is not so very unusual.

Regarding control variables, an unexpected result was that vocational education was not a significant predictor of employment outcomes. This is surprising since several studies (e.g. Prussia, Fugate & Kinicki, 2001; Vesalainen & Vuori, 1999) have shown that persons with good vocational education more often find new employment after job-loss. The explanation for this non-significant result could be the fact that the outcome variable in the model included both reemployment and also student status. In other words, the interpretation of the result is that good vocational education does not predict starting a new educational period, which also makes sense. If the outcome variable had included only reemployment, vocational education might have been a significant predictor of future employment status.

The fact that baseline SOC predicted employment situation at T2 is an important finding. Until now we have known that low SOC can expose a person to later unemployment, whereas persons with strong SOC have stable career lines with continuing employment periods (Feldt et al., 2005). Nevertheless, the way out of unemployment, and the role of SOC in that case, has been unclear until now. The result that SOC is associated with successful reemployment or student status is in line with earlier empirical findings concerning the return to work of persons with health complaints: Strong SOC has been shown to facilitate return to work of persons on sick-leave or participating in rehabilitation (Hansen et al., 2005; Hansen et al., 2006; Melin & Fugl-Meyer, 2001). In sum, the current study provides new information about the predictors of employment outcomes of unemployed persons.

The finding that SOC can predict the future employment situation is in line with Antonovsky's assumptions. He assumed that the level of SOC would affect an individual's behavior: Strong SOC persons are assumed to remain active also in severe stress situations, such as during unemployment, whereas low SOC persons are expected to concentrate on their negative emotions and give up even the attempt to try to make sense of the situation. This theoretical assumption may partly explain the results of the current study. It may be that strong SOC individuals found new jobs more often because they actively looked for new jobs and did not quit searching, even when facing difficulties. In contrast, weak SOC persons might have given up the search process as soon as they received the first negative feedback. Thus, the job-search behavior of strong vs. weak SOC persons may differ both in quantity and in quality. Unfortunately, no measures of the job-search frequency or quality were used in this

study. Differences in job-search behavior of strong vs. weak SOC persons would be an interesting topic for future investigation.

As was shown, the effect of SOC on employment outcomes was not a direct one. The effect of SOC on T2 employment status was partially transmitted by psychological distress. This finding made the mechanism through which SOC affects employment outcomes among unemployed persons more apparent: SOC reduced psychological distress experienced during job-loss, which, in turn, facilitated the reemployment chances of unemployed program participants. This finding underlines the importance of good mental health in reemployment success. As several earlier studies (Claussen, 1999; Claussen et al., 1993; Hamilton et al., 1993; Paul, 2005; Paul & Moser, 2009; Schaufeli & van Yerpen 1992; Taris, 2002; Vinokur & Schul, 2002) have shown, high distress and mental problems decrease the probability of finding a new job, whereas good mental health increases the chances of finding new employment. Thus, the role of SOC is to reduce mental suffering experienced during and due to job-loss, and, in this way, to increase the chances of returning to work.

It can nevertheless be asked why it was hypothesized that SOC influences mental health and not vice versa, as has been shown by Veenstra et al. (2005). A mediator model assumes that the mediator variable is affected by the predictor variable (Baron & Kenny, 1986). If we now consider the variables SOC and mental health, it can be argued that although SOC is a flexible construct it cannot be assumed to be as reactive as mental health. Consequently, the variable that is the more reactive one can be assumed to take the place of the mediator variable in a causal chain.

In order for the effect of SOC on psychological distress to take place, I used T1 SOC scores and T2 distress scores as has been recommended in the methodology literature (Gollob & Reichardt, 1991; Cohen et al., 2003, p. 573). This also causes some problems. As mediator and outcome now were measured at the same time, the problem may be that the outcome (employment situation) affected the mediator (experienced distress) and not the other way around as the hypothesis assumed (Cohen et al., 2003, p. 573). This would also be plausible, since other studies have shown an improved employment situation to lessen the mental problems experienced (e. g. Paul, 2005). Since both interpretations seem to be plausible, further investigation is needed in order to find out which one receives more empirical support.

In conclusion, in order to find a new job, an unemployed individual needs a strong sense of coherence to strengthen mental health, one of the central prerequisites for gaining new

employment. Hence, boosting SOC through supportive labor market interventions does not only result in decreasing mental problems among jobless persons but can also facilitate reemployment. Having strong SOC means that an individual believes in returning to work life and that he or she believes to possess all the resources needed for that return. In sum, strong SOC helps jobless individuals to find their way out of unemployment.

## 6 General discussion

### 6.1 Summary of results

This set of studies was designed to investigate sense of coherence in the context of unemployment. In the first empirical study the aim was to examine whether SOC is a flexible construct which can be changed through a labor market intervention. Unemployed persons' SOC is weaker than the SOC of employed persons or the general population, and therefore more sensible to changes, which allows a refined examination of the change mechanisms of SOC. The aim of the second study was to find out how experienced hardships affect unemployed individuals' mental health, and whether these effects can be explained through the moderating and mediating functions of SOC in these relationships. The third study investigated whether the mediating effect of SOC on stressor-strain relationship would depend on a situational factor, duration of unemployment. The fourth study examined sense of coherence as a predictor of change in life situation, i.e. transition from unemployment to employment and vocational education.

#### *Changeability of sense of coherence*

The results of the first study presented in Chapter Two show that sense of coherence is a flexible construct and can be boosted through supportive interventions. Furthermore, the analyses also reveal that even more drastic changes occur as a result of a change in life situation, i.e. reemployment. The changes in the subcomponents of SOC are not equal to each other. The subcomponents manageability and comprehensibility can be changed through an intervention program, whereas the subcomponent meaningfulness remains unchanged. Nevertheless, following reemployment, the meaningfulness subcomponent does change and shows the greatest increases of all subcomponents, even though comprehensibility also strengthens. The assumption that younger unemployed persons (under 30 years old) would show greater changes in their SOC than older participants could not be confirmed. The study also examined which variables would predict changes in SOC. As assumed, persons who had weaker personal resources showed greater changes in their SOC; long duration of unemployment and the lack of vocational education predicted positive changes in SOC. But negative changes were also detected: weak resources, i.e. impaired work ability and lack of

coping resources predicted a decrease in overall SOC. Therefore, it can be concluded that the selection of unemployed intervention participants should be made carefully, since a lack of resources crucial for labor market success can lead to decreasing SOC levels.

*Sense of coherence as an intervening variable between stressors and stress reactions among unemployed persons*

The aim of the second study presented in chapter three was to examine whether sense of coherence acts as an intervening variable between stressors omnipresent during unemployment (impaired work ability, financial strain and problem drinking) and stress reactions measured as psychological distress. It was tested whether SOC acts as a moderator and as a mediator in these relationships. The results from regression analysis show that SOC does not have a moderator effect in the stressor-strain relationship. However, the mediator hypothesis was confirmed. The results show that the effects of stress factors on psychological distress are transmitted through weak sense of coherence. In other words, weak SOC makes unemployed persons vulnerable to stress factors during unemployment. In conclusion, it can be recommended that supportive measures should be aimed at unemployed persons in order to strengthen their SOC and in this way to prevent negative mental health effects caused by stress factors during job disruption.

*Duration of unemployment as a moderator of the relationships of hardships, mental distress and sense of coherence*

The third study presented in Chapter Four tested whether the mediating effect of SOC in the hardships-mental health relationship would be different in different circumstances, i.e. in the case of long vs. short-term unemployment. The results show that sense of coherence has a mediating effect in the hardships-psychological distress relationship only among long-term unemployed persons, but not among persons who have recently lost their jobs. In case of short term unemployment, which can be understood as an acute stress situation, the situational factor (i.e. recent job-loss) overrides the effect of the personality factor SOC. In case of chronic stress, i.e. during prolonged unemployment, SOC does influence stress reactions by transmitting the effects of stressors to mental health. In sum, both personality and situational

factors, and especially their interaction effects, should be considered as possible factors explaining the detrimental effects of unemployment on health.

#### *Sense of coherence as a predictor of employment outcomes of unemployed individuals*

The aim of the fourth empirical study was to investigate whether sense of coherence could predict employment outcomes of unemployed persons participating in back-to-work programs. It was expected that since weak SOC persons are assumed to remain passive in stress situations, and that strong SOC persons are active and look for solutions, this would be the case also regarding job-seeking during unemployment. In turn, strong SOC persons' active job-search was expected to lead more often to reemployment than the passive adjustment to unemployment assumed to be typical for weak SOC persons. The results show that a person's initial SOC is indeed a predictor of employment status at the follow-up: Strong SOC persons find a new job or begin to study more often than their weak SOC peers. A further analysis examined how SOC affects employment outcomes. It was shown that in the relationships SOC-employment outcomes, a third variable, mental health, acted as a mediator. It can be concluded that a strong initial SOC reduces unemployed persons' mental problems, which, in turn, is associated with positive employment outcomes.

## **6.2 Methodological evaluation of the studies**

The empirical studies presented in this dissertation have some limitations regarding the study samples and data collection methods. First, the respondents were all unemployed intervention participants, thus no control group was used. A lack of control group could be a problem especially in the study which investigated changes in SOC over time. If a control group had been used, it would have been easier to say whether the changes detected in the study group were real changes or only a result of general reactivity (Ormel, Koeter & van den Brink, 1989). Nevertheless, the reliability of the results was confirmed by using procedures suggested by Shadish et al. (2002). SOC levels of unemployed respondents of this study were compared to the ones of employed persons and to the general population reported in other Finnish studies. Furthermore, the effect sizes found in this study were compared to effect sizes of other similar studies. Finally, it was ensured that the variables not expected to change

also remained stable over time. In sum, lack of a control group should not be considered to endanger the reliability of the results presented in this dissertation.

Second, the data for the studies were collected at two time points, at the baseline as the respondents entered the intervention programs and at the follow-up six months later. Considering this solution there are two critical points: First, the time lag between the measurement points and second, the quantity of time points. A time lag of six months was selected as it was considered that six months would be long enough for changes in SOC and in employment status to occur, but short enough so that the effects on SOC would not just fade away (Dormann, 2007). It can be concluded that the time lag selected was a suitable one, since significant changes in SOC, as well as changes in employment status, did occur during the follow-up time.

The quantity of measurement points (only two) can also be seen critically. The first study presented in this dissertation tested whether SOC can change over time. This assumption could be confirmed by empirical findings. But as only two measurement points were used, it could not be verified whether the changes in SOC were permanent or only temporary ones. Adding a third measurement point could have made such an examination possible. The use of two measurement points might also be criticized, considering mediator and moderator models. In mediator models, a causal relationship between predictor (X), mediator (M) and outcome (Y) is assumed (Baron & Kenny, 1986). To test for causal relationships a longitudinal study design should be used. If causal relationships between three variables are tested, three measurement points would be required ( $X_{t1}$ ,  $M_{t2}$ , and  $Y_{t3}$ ). Concerning moderator models the recommendation by Kenny (2009) is that the moderator variable should ideally be measured prior to the predictor variable. Because only two measurements were made, this recommendation could not be followed, and baseline values for both predictor and moderator variables were used. To conclude, an aim for future research could be to test whether SOC can be changed permanently and whether the indirect effects reported in these studies can still be found when methodological recommendations are strictly followed.

A further issue relating to mediator models presented in Chapter Three deserves to be discussed. Conventionally, as the effects of  $X_{t1}$  on  $Y_{t2}$  are measured, the model is controlled for  $Y_{t1}$  level, which was not done in the current study. This is why it can be argued that the models presented in Chapter Three fail to prove causal inference. Another question is whether causal relationships can be proved consistently at all. MacKinnon (2008, p. 201) concludes, that longitudinal data do provide more information about longitudinal mediation effects but

alternative explanations for detected relationships are still possible: Even though the analysis shows  $X$  to cause  $Y$  via  $M$ , it is also possible that the mediation effect occurred *between* measurement points, which is why the relation  $Y \rightarrow M \rightarrow X$  can also be true. Another possibility is that the true causal agent affecting the study variables has occurred at an earlier time point. The variables in the models were measured at a certain time point which was assumed to be the baseline, but it is also possible that the real exogenous variable is another, that occurred prior to  $X_{t1}$  (Little, Preacher, Selig, & Card, 2007).

Furthermore, it can be argued that uncertainty about the directions of causal relationships could be decreased by using cross-lagged panel correlation design (CLC). But even this method has its weaknesses: Rogosa (1980) has pointed out that the underlying assumption of CLC, the equality of stability paths (path from  $X_{t1}$  to  $X_{t2}$  and from  $Y_{t1}$  to  $Y_{t2}$ ), is very unlikely to take place in empirical settings. Besides that, the CLC model fails to explain spuriousness, which can also be the true source of causal relationships detected between  $X$ ,  $M$  and  $Y$  (Campbell & Kenny, 1999).

To sum up the discussion presented above, it is difficult to find a statistical method which infallibly proves causal relationships. A further question is whether it makes sense at all to assume that the directions of causal relationships are unidirectional ones. When the models presented in Chapter Three are considered, it is plausible to assume that experienced hardships cause psychological distress among jobless individuals, but it also is possible that persons suffering from distress tend to report more hardships than their non-distressed counterparts. For example, empirical studies have shown that alcohol use disorders lead to mental problems but mental problems also increase the possibility of alcohol problems, which result refers to a reciprocal causal relationship (Kushner, Sher, & Erickson, 1999). Furthermore, Antonovsky (1979, 1987a) assumed the relationship of SOC and mental health to be bidirectional: The strength of a person's SOC determines in which direction a person will move on the ease-disease continuum, towards better health or towards illness, but health is also one of the generalized resistance resources which form a person's SOC. Therefore, it is possible that the relationships of hardship variables, SOC and psychological distress are bidirectional an assumption which questions the proving of only one causal direction.

In conclusion, based on the models presented in Chapter Three it can be said that the *relationship* of hardships and psychological distress is mediated by sense of coherence. Nevertheless, it cannot completely reliably be said whether the *effects* of hardships on

psychological distress are mediated by SOC and whether *changes* in unemployed persons' distress levels are caused by hardship factors.

Measuring X and Y at different time points does nevertheless bring some advantages. Measuring independent variable and dependent variable at separate time points reduces problems caused by common method bias, which can occur if X and Y are measured simultaneously (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Common method bias refers to the tendency of respondents to answer later questions in a similar manner to earlier ones, for example, because the earlier answers still exist in short-term or long time memory. Earlier questions can also provide contextual cues which then affect the answering of later items, which can lead to systematic covariance, independent of the scales' contents. Note that time 1 and time 2 measurements were made in different locations as well, as T1 took place in the premises of intervention projects and T2 was a postal data collection. This procedure furthermore decreases the probability of common method bias to occur (Podsakoff et. al., 2003).

Regarding moderator effects, a further point needs to be discussed. As was shown in Chapter Three, sense of coherence did not have a moderating effect in hardships-distress relationships. One possible interpretation for this finding is that SOC does not buffer against stress caused by hardship factors. Nevertheless, the results can also be explained from a methodological point of view. According to Cohen and colleagues (2003) in behavioral sciences the effect sizes for interaction effects normally are moderate to small. Further, they point out that to detect a small size interaction effect, a sample of nearly 400 respondents would be needed. Since there are not many studies which examine SOC's moderator effects we cannot be sure how large the effects we could expect to find would be. But assuming that the moderating effect of SOC in the hardships-distress relationships would be only a small one, it can be concluded that the sample in the study presented in Chapter Three (n=98) is too small for such effects to be found. In sum, it is also possible that no moderator effects of SOC in hardships-distress relationships were found, due to a lack of statistical power. A discussion point relating to sense of coherence and mental health is whether SOC and mental health really are separate constructs or whether they measure the same phenomenon. In the studies presented in this dissertation sense of coherence and psychological distress measured with the General Health Questionnaire (GHQ), were significantly inversely correlated (-0.38) (see Table 1). Also the correlation between SOC and the mental symptom scale developed for the study presented in Chapter Two were highly significant and negative (-0.45 to -0.65) (see Table 6).

These results are in line with earlier findings. In their systematic review, Eriksson and Lindström (2005) showed that the negative correlation between SOC and GHQ varies from slight (-.32) to high (-.71). Also a highly significant negative correlation between SOC and other mental health measures, such as anxiety and depression, has been found. In the study of Gruszczynska (2006), mean weighted correlations from 17 studies between SOC and measures of anxiety and depression were calculated. The results raise uncertainty regarding the construct validity of the SOC-Scale, as the correlations between SOC and the two other measures were as high as -0.70 (anxiety) and -0.65 (depression). Also, other researchers have argued that the SOC scale just measures inversely negative affectivity and neuroticism and is not a separate measure of resilience (Frenz, Carey, & Jorgensen, 1993; Strümpfer, Gouws, & Viviers, 1998). The fact that there is overlap between SOC and some measures of mental health can also mean that the scale developed for measuring the construct, the Orientation to Life Questionnaire, is not a good measure of sense of coherence, but instead the SOC concept itself deserves further examination (Breslin et al., 2006).

One further critical point needs to be addressed. The respondents of the studies were all participating in labor market interventions designed to boost reemployment, to support the individuals in their job-search process and to counteract negative health effects of unemployment. The participation in these programs followed either as a result of the person's own interest or a request from employment office. It can be hypothesized that those persons who voluntarily participate in such programs already have strong resources and a strong motivation for job-seeking. On the other hand, those persons who receive a request from employment office saying that the participation in a program is a condition for getting unemployment benefit, may also be a special group: Employment offices use these kind of activation measures when a person is considered to be in need of special guidance and is having problems in job-seeking. Furthermore, some of the programs in which the respondents of the second data collection participated were targeted at unemployed persons with health limitations. In sum, the respondents of the studies presented in this dissertation may be a special group of unemployed persons, a fact which can be seen as a limitation, but also as a chance. On one hand it can be said that the results of the studies cannot be generalized since the samples are not representative, but special samples. Using of such samples can also cause restrictions in variance of the factors of interest, which should be considered as the results are interpreted. On the other hand, these studies provide information about special groups of unemployed persons under specific circumstances, which should be seen as a strength of the current studies.

### 6.3 Conclusions

This dissertation contributes to research on sense of coherence, to unemployment research and to research on labor market interventions. The first contribution to sense of coherence research is the provision of new information about the change mechanisms of the construct. First of all, the results confirm that SOC can be changed through a supportive intervention; a question that has awoken a lot of discussion. Hence, the findings of this dissertation are in line with those studies which show that SOC does change through supportive interventions (Lillefjell & Jacobsen, 2007; Richter & Nitsche, 2002; Weissbecker et al., 2002) and counteracts those research reports which show that, regardless of supportive measures, such a change is not possible (Dobkin, 2008; Juvonen-Posti et al., 2002). The second important contribution to this discussion is the investigation of different change mechanisms. A novel idea was to compare different mechanisms, i.e. change through an intervention and through a life event, and to examine whether different mechanisms produce different kinds of change, both in overall SOC and in the subcomponents. It was shown that a positive life event resulted in an even greater increase in SOC than did an intervention and that two of the subcomponents (manageability and comprehensibility) could be changed through an intervention, whereas for increases in the meaningfulness subcomponent, a positive change in the life situation was needed.

The second main contribution to SOC research is the investigation of the relationship of SOC and life events. By now, almost all studies dealing with this question have examined whether and to what extent SOC changes through a major life event. The novel idea of this dissertation was to proof whether this causal relationship works also another way round, i.e. whether future life events can be predicted by a person's SOC. The hypothesis proved to be true as strong SOC predicted positive changes in labor market situation; strong SOC individuals were more often reemployed and studying than their low SOC counterparts. It can be concluded that the relationship of sense of coherence and life events is a reciprocal one, as has also been shown to be the case regarding mental well-being and life events (Patton et al., 2003).

This dissertation contributes also to research on unemployment. Until now, numerous studies have examined the mental health effects of job disruption. Unemployment research has further focused on the identification of stress factors during unemployment; it has been shown that persons who experience hardships, such as financial strain during their job-loss are at special risk of mental problems (e.g. Creed & Bartrum, 2008). This dissertation goes one step

forward and examines the mechanisms through which the hardships cause greater distress among jobless persons. The results show that hardships are associated with great mental ill-health because unemployed individuals' sense of coherence is low, and low SOC in turn transmits the negative effects of hardships to mental health. As this dissertation examined the role of sense of coherence in case of three kinds of hardships, i.e. financial strain, poor work ability and problem drinking, a task for future investigation is the testing of the model in case of other risk factors, such as the lack of social support during unemployment (e.g. Viinamäki, Niskanen, & Koskela, 1995).

A more refined analysis of the role of SOC in hardships-mental distress relationship was presented in Chapter Four. By introducing a new analysis method that allowed the simultaneous examination of mediator and moderator effects, an important result was found: SOC acts as a mediator between stressors and stress reactions only among long-term, but not among short-term unemployed persons. As labor market interventions are considered it can be concluded that strengthening of SOC especially benefits long-term unemployed persons, since among them weak SOC is the factor that transmits the negative effects of hardships to mental health. This result is important also for SOC research, since it not only confirms the results known from earlier studies showing that SOC acts as a mediator between stressors and stress reactions, but also that this effect may be conditional and dependent on situational factors.

What does the sense of coherence concept add to unemployment research? Earlier theories which explain why unemployment is destructive to mental health focus on environmental factors which are expected to affect the well-being of an unemployed individual (Jahoda, 1982; Warr, 1987). There are also further theories which argue that an individual is not reactive by nature and does not just respond to external factors, but is, rather, an active agent trying to make sense of its environment (Fryer, 1986). Even though the focus point of the theories of Jahoda, Warr and Fryer may be different (i.e. environmental factors vs. individual), common to all of them is that they focus on the question why unemployment makes people ill. Antonovsky (1987b) also assumed job-loss to be such a powerful stressor that it can affect even an individual's sense of coherence, which is a rather stable personality disposition. Notwithstanding with other theories sense of coherence-theory tries to answer the question of how people can remain healthy even though encountering such a powerful stressor as job-loss. Thus, the focus of Antonovsky's theory is on coping and resiliency, not on negative health effects and illness. This salutogenic point of view can open new perspectives in unemployment research. As the research focus no longer is on negative health effects but

on remaining healthy, this can provide new ideas regarding, for example, intervention programs for unemployed persons. Coping with unemployment is and also will be a central question in the future, since a society without unemployment seems to be unrealistic, but individuals will always have to deal with job disruption.

The effects of labor market interventions have also deserved a considerable amount of research interest. The results of this dissertation show that a return-to-work program is such a powerful intervention that it can affect even a rather stable personality disposition such as sense of coherence. Strengthening of a person's sense of coherence may appear a quite far-fetched aim for labor market programs. But, as the results of this dissertation show, boosting of SOC increases the chances of getting new employment and lessens the mental suffering caused by job-loss. Thus, strengthening of a person's central resistance resource, sense of coherence, will result in further positive changes in an individual's life situation and in his or her health status.

Even though an increase in mean SOC could be detected, a more refined analysis showed that in some cases SOC declined. Persons who did not have labor market relevant resources, i.e. good work ability and strong coping resources, showed decreasing SOC levels over time. In other words, the impacts of a labor market intervention designed to support unemployed persons were negative for some participants. The fact that activities directed at jobless persons can also cause damage to their well-being is an important finding regarding the reforms which labor market policy has undergone in recent years. Nowadays unemployed persons are expected to be active job-seekers with willingness to work (Ala-Kauhala, Keskitalo, Lindqvist, & Parpo, 2004). This, a positive aim as such, is also implemented in ways that force individuals actively to participate: Attending labor market programs is often a prerequisite for receiving unemployment benefit. Enforced participation, then, can be ineffective or even harmful when targeted at the wrong participant groups. An originally supportive intervention can have negative impacts, such as decreasing chances of reemployment, if it is targeted at vulnerable participant groups (Malmberg-Heimonen & Vuori, 2005). Earlier investigations (e.g. Frese, 1987) have also suggested that an intervention which increases hope of finding new employment, without increasing the opportunities of re-entering the work force, can be destructive for the persons participating. Frese (1987) suggests that *disappointed hope* could be the experience which harms an unemployed individual's well-being: At the beginning of an intervention program hope of finding new employment is awoken, an expectation which remains unfulfilled in some cases. To conclude, earlier findings

and the results of this study underline the necessity of evaluating participants' personal resources for a potential intervention and, when necessary, of providing them with services which correspond their special needs better than return-to-work programs.

Relating to changes in SOC one more point has to be discussed. As reported in Chapter Two, meaningfulness remained stable throughout the study period. According to Antonovsky (1987a, p. 19-22), meaningfulness is the central component of SOC. In the event that comprehensibility and manageability strengthen, but meaningfulness remains unchangeable, the overall SOC will eventually return to its initial lower level. Thus, it can be assumed that even though an increase in overall SOC has been reached through an intervention, the tendency of decreasing SOC levels remains, since the motivational component meaningfulness could not be affected. Nevertheless, the results showed that meaningfulness did strengthen among those persons who found new employment. Following the theory of Antonovsky (1987a, p. 19-22), it can be assumed that re-employed persons did not experience just a temporary increase in their SOC, but will be able to maintain their higher SOC level. In sum, even though labor market interventions may result in positive well-being effects in the short run, it may be that these benefits remain only temporary if a return to work is not ensured.

Until now reemployment research has largely focused on looking for external factors which enhance reemployment, such as good education, young age, and good vocational skills (Kanfer et al., 2001; Prussia et al., 2001; Wanberg et al., 2002). But according to Antonovsky's theory, such factors are just single resources which together form a more general coping resource, sense of coherence. Antonovsky (1979, 1987a) underlines that it is not important to possess a certain resource, but it is more important to have enough relevant resources in one's life situation. Many ways lead to strong SOC and the lack of a certain resource is not necessarily a handicap, since the level of overall SOC matters the most (Antonovsky, 1987a). In the case of unemployment, it can be said that providing vocational training, for example, should not be the central aim of labor market interventions; it would be much more important to enhance a person's ability to cope with stress combined with unemployment and job-seeking. In conclusion, a recommendable aim for labor market programs would be the improvement of a person's SOC and the reduction of the presence of factors harming it, such as the hardships experienced during job disruption.

Inasmuch as we assume that the key for successful coping with unemployment is a psychological factor SOC, this also refocuses the unemployment discussion from the level of

a whole society to an individual level. In other words, the problems relating to unemployment are no longer societal problems, but rather individual ones (see e.g. Beck & Beck-Gernsheim, 2001). This perspective on the issue can be seen as a chance, since every individual now has the power to change his or her own life situation. The same issue can also be seen as a threat, as the responsibility of finding a new job and coping with job-loss then lies on the person's own shoulders.

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