

Wenche Similä

The Children's Orientation scale in Health Promoting schools

Theoretical background,
potential for action research and
validation of the salutogenic instrument
The Children's Orientation scale (C-SOC)

Master's thesis in Health Sciences

Trondheim, May 2015

Wenche Similä

The Children's Orientation scale in Health Promoting schools

Theoretical background, potential for action research
and validation of the salutogenic instrument

The Children's Orientation scale (C-SOC)

Master's thesis in Health Science

Trondheim, May 2015

Norwegian University of Science and Technology

Faculty of Social Science and Technology Management

Department of Social Work and Health Sciences



NTNU – Trondheim
Norwegian University of
Science and Technology

Acknowledgements

This is a Master's thesis at the Department of Social Work and Health Science, Norwegian University of Science and Technology (NTNU), Trondheim.

When I applied for the study, I did not exactly know what to write about. I had been working as a nurse, and mostly with cardiology, which I found very interesting. Though, I had a greater preference for children's welfare much earlier. I decided to go back to this theme and it all came together the first days of the master's programme. Professor Geir Arild Espnes advised me to contact Professor Bengt Lindström who, after an initial discussion, willingly accepted my proposal to supervise me. Thank you for believing in my early thoughts of what I was going to do in the period of my Master's study! Although I had to limit the contents, constructive and informative supervision from Professor Lindström, gave me the opportunity to do this thesis. I would also like to thank Professor Monica Eriksson for informative supervision, and Professor Malka Margalit for permission to translate and validate the C-SOC scale. I would further like to thank the copyright holder Avishai Antonovsky for permissions to use tables, figures and questionnaire on the salutogenic concepts.

Furthermore, I would like to thank The Research Centre for Health Promotion and Resources, HIST/NTNU, Chief of department Professor Geir Arild Espnes, PhD Unni Karin Moksnes, PhD Mary E. B. Eilertsen, and PhD Gørill Haugan for support and cooperation. I also would like to thank the community physician for children, Betty Pettersen assisting me to access the data, and the assistance from Professor Borgunn Ytterhus, Assistant Professor Audhild Løhre and fellow student Merete Nypan in the translation of C-SOC. PhD candidate Lidia Santora and Professor Siw-Tone Innstrand, thank you for brilliant support with PCA/CFA analysis! I would also like to thank senior advisor Kyrre Svarva, for technical support with the questionnaires and support with AMOS.

I am most gratefully acknowledging the assistance of the schools, the teaching staff and the students who participated in this study and whose experiences this thesis is based at.

At last but not least, I am grateful to my wonderful children for giving me music, entertainment, inspiration, and new energy during my study.

Trondheim, 2015-04-27

Wenche Similä

Summary

This Master's thesis consists of three articles. Article I is the base for Article II and III. The main aim of Article I is to clarify the theoretical framework of Antonovsky's salutogenic concept, and to introduce a method for implementation of the scale as a tool for health promotion in school settings. The first part of Article I present the salutogenic model consisting of the health ease/ dis-ease continuum, general resistance resources and the concept sense of coherence. The original measure of the sense of coherence, The Orientation to Life scale is presented in it's functionality, validity and reliability. The adaption to children, The Children's Orientation scale (C-SOC) and the development of sense of coherence in children is presented as a background on how to implement this in school settings (Article II), including the Norwegian validation of the scale (Article III). Theories and concepts from the overarching model "the salutogenic umbrella" are used in the description of the development of sense of coherence in childhood. The second part of Article I introduces the action research spirals, the evidence on salutogenesis and action research, including a strategy for a resource oriented discourse.

Article II discusses the possible advantages of using The C-SOC scale as guidance for health promotion activities among children in school nursing services. The first part of Article II introduces the importance of a community focus on children's health, and the importance of a child - school nurse - family - teacher relationship in health promotion among school children. The salutogenic concept is mentioned as a framework with the potential of creating coherence in and between people and sectors in the construction of an overall "health promoting society". The second part of Article II focus on a discussion of a health promoting strategy through school nursing services, with suggestion of the C-SOC scale as a preparatory questionnaire for health promoting dialogues. The discussion is based on the core elements of action research.

Article III presents a study of the C-SOC scale in a Norwegian sample. The C-SOC scale was translated into Norwegian, and tested in a sample consisting of 157 children aged 8-10 from elementary schools in Trondheim. Exploratory principal component analyses and confirmatory factor analyses were used to test the factor structure of the scale, purposely to find if the one-factor structure Antonovsky suggested was confirmed. Reliability analysis was

conducted with Cronbach's alpha. Additional analysis, t-Test and One-way ANOVA, were used to test differences in age and gender. A higher order three-dimension factor structure gave the best fit for a model. On the basis of the results from the study it was indicated a need for improvement of the scale.

Norsk sammendrag

Denne masteroppgaven består av tre artikler. Den første artikkelen danner grunnlaget for Artikkel II og III, og er en beskrivelse av den teoretiske og empiriske bakgrunnen for spørreskjemaet ”The Children´s Orientation scale”, oversatt på norsk til Orienteringsskala for Barn. Målet med Artikkel I er å klargjøre den teoretiske og empiriske bakgrunnen for spørreskjemaet, og å introdusere en metode som egner seg for å implementere verktøyet i helsefremmende sammenhenger i skolen. Første del av Artikkel I presenterer den salutogene modellen som består av kontinuumet mellom helse og uhelse, generelle motstandsressurser og konseptet om opplevelse av sammenheng i livet. Det originale måleinstrumentet for opplevelse av sammenheng i livet ”The Orientation to Life scale”, her oversatt til Livs Orienterings skala, blir presentert i forhold til funksjonalitet, validitet og reliabilitet. Barneutgaven ”The Children´s Orientation scale” og barns utvikling av opplevelse av sammenheng i livet blir presentert som grunnlag for en diskusjon om hvordan spørreskjemaet kan implementeres i skolen (Artikkel II), og som grunnlag for en validering av spørreskjemaet i et norsk utvalg (Artikkel III). Teorier og konsept fra den overordnede modellen ”den salutogene paraply” blir brukt i beskrivelser om barns utvikling av opplevelse av sammenheng i livet. I siste del av Artikkel I introduseres konseptet for aksjonsforskning, med aksjonsforsknings-spiralene, evidens fra salutogenese og aksjonsforskning, og en strategi for ressursorienterte samtaler.

Hovedmålet med Artikkel II er å diskutere mulige fordeler ved å bruke spørreskjemaet Orienteringsskala for Barn som en veileder for helsefremmende aktiviteter blant barn gjennom skolehelsetjenesten og i skolen. Første del av artikkelen introduserer viktigheten av et samfunnsfokus på barns helse, og viktigheten av et barn-helsesøster-familie-lærer samarbeid i helsefremmende arbeid blant barn i skolen. Det salutogene konseptet nevnes som et rammeverk med potensiale til å etablere en sammenhengende helsefremmende strategi i og mellom mennesker og sektorer, for å oppnå et helsefremmende samfunn. Andre del av Artikkel II består av en diskusjon rundt en helsefremmende strategi i skolehelsetjenesten, hvor Orienteringsskala for Barn blir foreslått som et forberedende verktøy for helsefremmende samtaler. Diskusjonen føres innenfor grunnelementene i aksjonsforskning, som en del av implementeringsstrategien.

Artikkel III består i rapportering av en studie hvor spørreskjemaet Orienteringsskala for Barn er testet ut i et norsk utvalg. Nasjonale rapporter har etterspurt metoder, instrumenter og gode rutiner for systematisk bruk av samfunnsøkonomiske midler i alle sektorer.

Skolehelsetjenesten i Norge trenger forbedringer med tanke på økning av antallet helsesøstre og økt kompetanse. Salutogenesen tilbyr instrumenter for helsefremmende aktivitet, som spørreskjemaet Orienteringsskala for Barn. I denne studien er spørreskjemaet oversatt til norsk og testet i et utvalg av barn fra 8-10 år. Eksplorerende og bekreftende faktoranalyser er brukt for å undersøke faktorstrukturen i spørreskjemaet. Reliabilitets analyser er utført med bruk av Cronbach´s alpha. Analyser med t-Test og One-way ANOVA er brukt for å undersøke forskjeller mellom kjønn og aldersgrupper. En høyere ordens tre-dimensjoner faktor struktur gav de beste resultatene for beste modelltilpasning av item i spørreskjemaet. På bakgrunn av funnene i studien ble det anbefalt å gjøre en forbedring av skalaen i forhold til barns kognitive og emosjonelle utvikling og for å få en bedre tilpasning til barn i Norge.

Abbreviations

AGFI	= Adjusted goodness-of-fit index
CFA	= Confirmatory Factor Analysis
CFI	= Comparative fit index
Co	= Comprehensibility
C-SOC scale	= Children's Orientation scale
df	= degrees of freedom
GRR	= General Resistance Resources
Ma	= Manageability
Me	= Meaningfulness
PCA	= Principal Component Analysis
SOC	= The sense of coherence
SOC scale	= Orientation to Life scale
RMSEA	= Root mean square error of approximation
χ^2	= Satorra-Bentler Chi square

Table of Contents

Acknowledgements	i
Summary	iii
Norsk sammendrag	v
MAIN INTRODUCTION.....	1
ARTICLE I.....	3
The Children´s Orientation scale, and action research as a method for implementation: Theoretical and empirical background	5
INTRODUCTION.....	5
Literature search.....	6
The aim of this article.....	6
THE THEORETICAL FRAMEWORK OF THE SALUTOGENIC MODEL	6
Stressors, tension and stress, general resistance resources and the health ease / dis - ease continuum.....	7
The sense of coherence (SOC) and the SOC scale.....	10
Comprehensibility	11
Manageability.....	11
Meaningfulness	11
Validity and reliability of the SOC scale	12
Stability of SOC	14
The Children´s Orientation scale.....	14
Development of SOC	15
ACTION RESEARCH.....	22
Empirics of action research and salutogenesis	22
The concept of action research.....	23
The Action spiral - Systematically description	24
The Research spiral - Critical reflection.....	24
CONCLUSION.....	25
ARTICLE II.....	31
How to implement The Children´s Orientation scale: A salutogenic approach on health promotion by school nursing services in frames of the action research spiral	33
INTRODUCTION.....	33
Attachment and belonging to a society	34
Important areas for health promoting activities	34
Example of strategy.....	35
The state of children´s health in Scotland	35
The state of children´s health in Norway	37
Global recommendations and the fit of a salutogenic approach	38
Method for implementation.....	38
DISCUSSION	39
Issue identification	39
Summarize previous experiences	40

Formulating goals.....	40
Plan and develop action.....	41
Describing action (procedure).....	43
To implement actions.....	44
CONCLUSION.....	44
ARTICLE III.....	49
Validation of The Children´s Orientation Scale (C-SOC) in a Norwegian sample.....	51
INTRODUCTION.....	51
Belonging to a community.....	52
Increasing concerns, and the state of school nursing services.....	52
National Public Health goals and proposed instruments.....	52
Reliable and validated measures.....	53
The aim of the study.....	53
Previous findings of model fit in the SOC scale.....	53
The sense of coherence and the SOC and C-SOC scales.....	54
METHODS.....	55
The selection of participants.....	55
Inclusion criteria.....	55
Procedure.....	55
How the study setting was adjusted to children.....	56
The measurements.....	56
Previous findings.....	57
The translation procedure.....	57
Ethical considerations.....	59
The data analysis.....	59
Frequency analyses.....	59
Principal component analyses and confirmatory factor analyses.....	59
Significance tests.....	60
RESULTS.....	60
The descriptive data analyses.....	60
Frequency analyses.....	60
The means and standard deviations of the SOC score.....	61
The strength of SOC.....	61
Principal Component Analyses (PCA) and Confirmatory Factor Analyses (CFA).....	62
Sample Size.....	62
Outliers.....	63
Normality.....	63
Multicollinearity: Factoriability of R.....	64
Correlations Matrix.....	65
Bartlett´s test of sphericity.....	66
Factor rotation and factor extraction.....	66
Kaiser-Meyer-Olkin test (KMO).....	66
Catell´s scree test.....	66
Parallel analysis.....	67
Factor extraction.....	67
Exploratory principal component analysis (PCA).....	67
One factor extracted.....	68
Two factors extracted.....	68

Factor interpretation for a two-factor structure	69
The three dimensions factor structure	69
Factor interpretation for the three dimensions factor structure	70
Confirmatory Factor Analyses (CFA)	71
Cronbach’s α reliability	73
Additional analyses	73
T-test.....	73
Assumptions for ANOVA.....	74
One-way ANOVA.....	74
DISCUSSION	75
PCA and CFA analyses	75
Additional analyses	76
Children’s development	77
Ethical considerations	78
Limitations	78
CONCLUSION.....	79
Appendices	I

Appendix 1: THE CHILDREN’S ORIENTATION SCALE

Appendix 2: ORIENTERINGSSKALA FOR BARN (NORWEGIAN TRANSLATION OF THE CHILDREN’S ORIENTATION SCALE)

Appendix 3: APPROVAL FROM THE REGIONAL ETHICAL COMMITTEE FOR MEDICAL HEALTH PROFESSION RESEARCH IN MID-NORWAY (REK)

Appendix 4: REQUEST FOR PARTICIPANTS ADDRESSED TO THE PRINCIPALS IN ELEMENTARY SCHOOLS

Appendix 5: INFORMATION FOR THE CHILDREN AND THEIR PARENTS

MAIN INTRODUCTION

This Master's thesis consists of three articles.

Article I is the base for Articles II and III, and presents the theoretical framework of Antonovsky's salutogenic concept, together with empirical evidence on the validation and reliability of The Orientation to Life scale (SOC-29/-13). Further, Margalit's adaption of the SOC scale to children is presented; The Children's Orientation scale (C-SOC). The concept of action research is presented in the final part of the article to exemplify a method to implement salutogenesis in health promoting schools. (Number of words: Total: 7188, References: 485, Abstract: 179. Number of Figures: 5 & Tables: 1).

Article II presents some empirical evidence from health promoting schools, school nursing services, children's experiences with school health services, political commitments and goals, finally a discussion of a salutogenic approach in a health promoting strategy framed in action research. (Number of words: Total: 4248, References: 339, Abstract: 139, Number of Figures: 1)

Article III is an empirical investigation of the C-SOC scale testing the factor structure in a Norwegian sample. (Number of words: total: 10171 references: 363, Number of Figures: 1, and Tables: 12 (1140 words)).

The articles will later be submitted to Health Promotion International, allowing a total of 7000 words including abstract, text, references, tables and figures, with three figures and tables as maximum. Articles I and III pass the limits of words and figures/tables. Since Article III is the first translation and validation of a new scale in Norway, it was seen as important to keep all analyses and the discussion in spite of exceeding HPI rules. The future published versions of Articles I and III will be shortened, but give a link to the full text article.

ARTICLE I

The Children's Orientation scale, and action research as a method for implementation: Theoretical and empirical background

WENCHE SIMILÄ

*Department of Social Work and Health Science,
Norwegian University of Science and Technology, NTNU
Corresponding author: wenche.simila@hotmail.com*

ABSTRACT

The main aim of the present article is to clarify the theoretical background for the salutogenic instrument The Children's orientation scale, and to introduce a method for implementation of the scale as a tool for health promotion in school settings. The first part of the article presents the salutogenic model consisting of the health ease/ dis-ease continuum, general resistance resources and the concept sense of coherence. The original measure of the sense of coherence, The Orientation to Life scale is presented in its functionality, validity and reliability. The adaption to children, The Children's Orientation scale and the development of sense of coherence in children is presented as a background on how to implement this in school settings (Article II), including the Norwegian validation of the scale (Article III). Theories and concepts from the overarching model "the salutogenic umbrella" are used in the description of the development of sense of coherence in childhood. The second part of this article introduces the action research spirals, the evidence on salutogenesis and action research, including a strategy for a resource oriented discourse.

Key words: Salutogenesis, children, health promotion, school nursing services, action research.

INTRODUCTION

Salutogenesis is a health theory here introduced as a model and theoretical foundation for health promotion in action (Antonovsky, 1996). The model is placed in a multidimensional health-illness continuum between absolute health and absolute un-health, two end points on a heuristic device never found in reality. The initial question that sparked the salutogenic model was: What creates health and what are the factors that move a person toward either end of the continuum (Antonovsky, 1979, p. 37). To find the answer at least four recourse arenas have to be considered: "one's inner feelings, the immediate interpersonal relations, major activities and existential issues" (Antonovsky, 1987, p. 23). These are expressions of the four health determinants; mental, social, physical and spiritual health (Chuengsatiansup, 2003; WHO, 2005, 2010, 2012). Further, the rationale of the specific society, where people live and lead their lives must be taken into account to affect life objectively (Antonovsky, 1987).

The WHO Ottawa charter for health promotion (1986) identified schools as one of the key settings for population and public health (WHO, 1986). In this Master's thesis schools are

used as the setting for health promotion of children. Action research is considered to be one of the most effective research methods to effectuate active health promotion strategies (Whitehead, 2006). To introduce a discussion on health promotion strategies in schools through school nursing services (Article II), this paper presents the theory of the salutogenesis, and the last part presents an action research model as an implementation strategy.

Literature search

Literature search has been accomplished on computer searching in following databases: Pubmed, Cinahl, Google scholar and Science Direct, using following key words: *Children, health, health promotion, school, school nursing services, stress, coping, action research, health promoting dialogues, childhood development*. Literature was also searched from <http://www.salutogenesis.hv.se>, a database for salutogenic articles only. Making contacts in Research gate, gave access to some of the literature, and reference lists from articles on the subjects gave information on relevant literature.

The aim of this article

The main aim of this article is to clarify the theoretical background of The Children's Orientation scale, and in detail present a method on how to implement the theory in health promoting schools.

THE THEORETICAL FRAMEWORK OF THE SALUTOGENIC MODEL

The core concept of the salutogenesis as proposed by Antonovsky, consists of: the ease-/disease continuum, the general resistance resources (GRR) and the sense of coherence (SOC) measured by The Orientation to Life scale (SOC-29/-13) (Antonovsky, 1996). The Children's Orientation scale (C-SOC) is an adaption of SOC-29, for children aged 5-10 (Idan & Margalit, 2011). In Article III the C-SOC scale is described and validated in a Norwegian sample. "The salutogenic umbrella" (Fig.1) presented here is an overarching model of theories and concepts that all include salutogenic elements and dimensions (Lindström &

Eriksson, 2010). The concepts of empowerment, resilience, attachment, hardiness, coping, self-efficacy, flourishing and wellbeing will be used as parts of the discussions in the article.

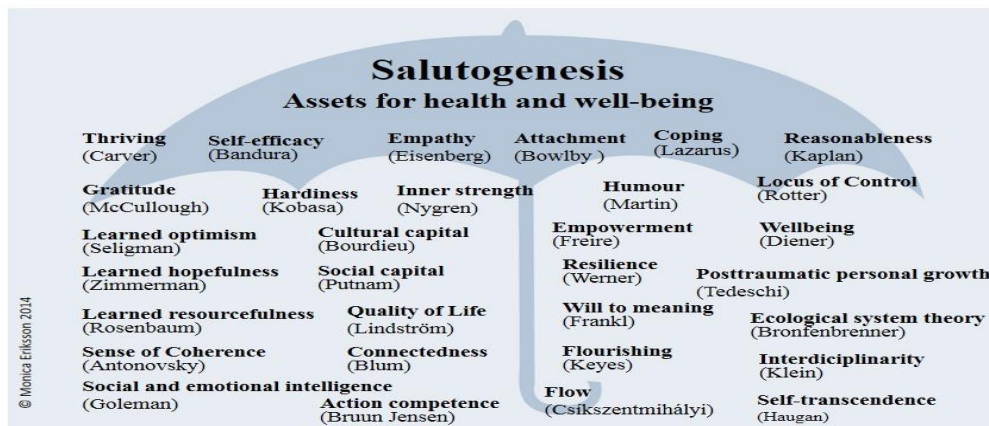


Figure 1. The salutogenic umbrella. (Last version (2015), received from Eriksson, and used with permission from Eriksson and Lindström).

Stressors, tension and stress, general resistance resources and the health ease / dis - ease continuum

Salutogenesis is described as a health ease/dis-ease continuum where stressors, tension and stress are factors in position to break down health (Antonovsky, 1979). There is no universal agreement on the definition of stress, therefore there are many existing definitions describing different types of stress (Monat & Lazarus, 1991). Seyle's (1991) definition states that "Stress is the non specific (that is, common) result of any demand upon the body" (Seyle, 1991, p. 22). Further, Sarafino in 1998 stated: "Stress is the condition that results when person-environment transactions lead the individual to perceive a discrepancy - whether real or not - between the demands of a situation and the resource of the person's biological, psychological, or social systems" (Turner-Cobb, 2014, p. 32).

Originally the salutogenic theory was formed as a theory where stress was seen as a natural part of life. Antonovsky named factors that upset one's balance, as "stressors" (Lindström & Eriksson, 2010), and defined stressor as "...a demand made by the internal or external environment of an organism that upsets it's homeostasis, restoration of which depends on non-automatic and not readily available energy-expending action" (Antonovsky, 1979, p. 72). Stresses and challenges are unavoidable aspects of everybody's life (Idan & Margalit, 2011). The difference between the terms stress and stressors can be described as stressors being

agents with potential stress-inducing abilities, and stress as the result of the potential stressor (Turner-Cobb, 2014). Stressors are life experiences characterized by lack of coherence, underload or overload, and inability to participate in decision-making (Antonovsky, 1987). Stressors lead to tension, which is the nonspecific reaction to any stressor (Singer & Davidson, 1991), and the tension level depends on how we cope with the stressors (Antonovsky, 1979). Coping is an attempt to deal with stress by trying to change the load, and to reduce symptoms caused by the stressor, by increasing resources bound to the environment (Netterstrøm, 2007). In coping, the person-environment relationship is influenced by patterns of motivation (values, commitments, goals), beliefs about oneself and the world, and recognition of personal coping resources (financial means, social and problem-solving skill, health and energy). The nature of danger, its imminence, the ambiguity and duration, plus the existence and quality of social support are characteristics that influence this process. Individual differences in characteristics lead to differences in appraisals (Folkman & Lazarus, 1991). According to Antonovsky the human reaction to the stressors depends on his/her access to general resistance resources (GRRs) and individual characteristics (Antonovsky, 1987).

GRRs are internal and external characteristics giving life experiences characterized by coherence, codetermination and underload-/overload balance. This kind of life experiences build and maintain a strong sense of coherence (SOC) (Antonovsky, 1979, 1987). Antonovsky (1979) defined GRR, as shown in Table 1 (used with permission from the copyright holder).

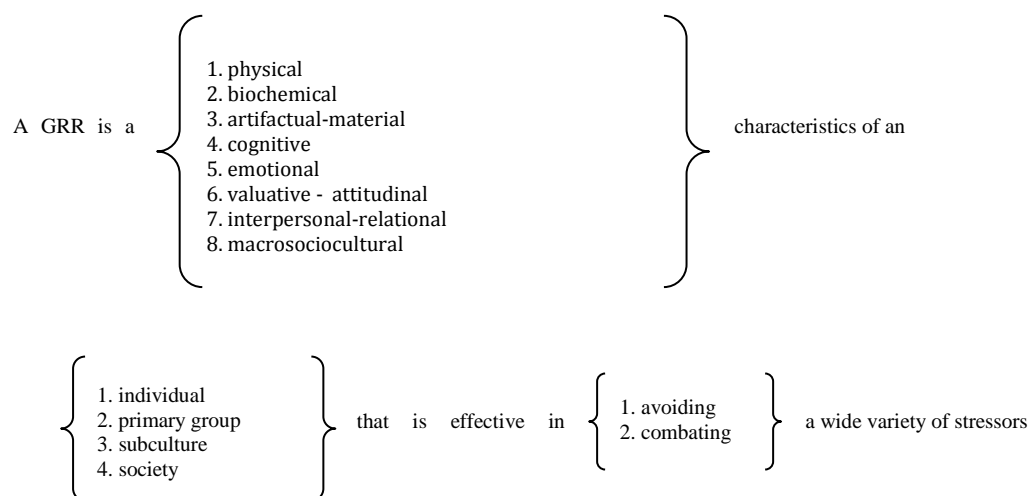


Table 1. Mapping-Sentence Definition of General Resistance Resources (Antonovsky, 1979, p. 103).

Having access to the necessary GRRs that counteract stressors, support us in the movement towards the ease end of the continuum, building or regaining health (Antonovsky, 1987). Deficient GRRs are described as general resistance deficits undermining SOC (Antonovsky, 1979). In case of deficient GRRs, a possible effect will be different levels of breakdown depending on the type and degree of the stressor. If the breakdown level increases through tension, pathogenic forces can take over. This can happen both at a personal level and at group level. The objective, social situation of a group (i.e. family) in stressful situations will depend on the available GRRs and the SOC of this social group (Antonovsky, 1979). In general research presents stress as a negative factor. Salutogenesis instead puts the focus on the rehabilitation of stress reflecting on causative factors (Antonovsky, 1987). “Thinking salutogenic not only opens the way for, but compels us to devote our energies to, the formulation and advance of a theory of coping” (Antonovsky, 1987, p. 13). By activating salutogenic GRRs to resolve tension and overcome stressors, we generate life experiences that in turn reinforces SOC, and from it’s management we discover our existence is neither shattering nor meaningless (Antonovsky, 1979).

While a pathogenic orientation asks for what causes a persons illness, the salutogenic orientation asks for what are the factors that facilitate a person to remain at a certain level or to move towards a more salutary level on the ease/dis-ease continuum (Antonovsky, 1979). To illustrate the health ease/dis-ease continuum and the lifelong process of meeting stressors and tensions, permission was granted by Lindström & Eriksson (2010) to use the figures below (Fig. 2 & 3). Figure 2 illustrates “the river of life” with the arrow pointing in the health promoting direction, and the waterfalls illustrating the breaking down. Figure 3 could be placed in the river and in detail illustrates the individual as an active and participating subject leading an active and productive life.

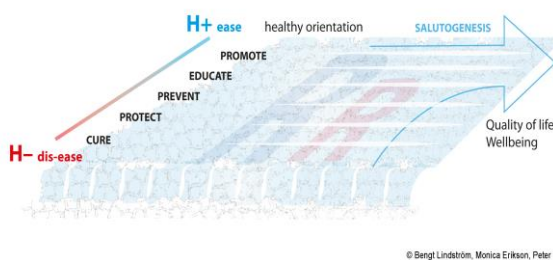


Figure 2. Health ease-/dis-ease continuum, “the river of life”.

(The right to use the two figures was granted by the authors, (Lindström & Eriksson, 2010)).

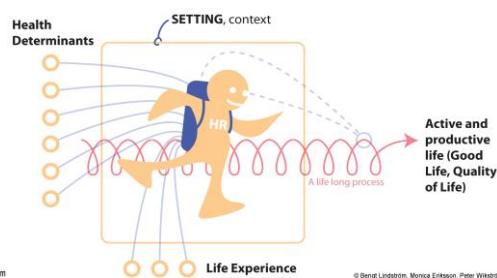


Figure 3. The individual as an active and participating subject.

To measure the location on the ease/dis-ease continuum, Antonovsky developed The Orientation to Life scale (SOC-29/-13). The items together illustrate a person's sense of coherence (SOC). A strong SOC is associated with an access to a satisfactory or adequate set of GRRs. A weak SOC is associated with GRR deficiency. Moving towards the ease end of the continuum means building a stronger SOC, while moving towards the dis-ease end is considered as a breakdown. In the process it is important to reflect on whether there is any state or condition of one's health, general or specific, feeling painful and functional limiting. For example to open for expressions of pain from a person who is bullied, and then help the person reflect in what way the pain is functional limiting, further, to find resources to prevent functional limitations and pain. The strength of pain and the functional limitations are also important. Cultural and personal variation in answers is to be expected. This points out the importance of defining breakdown in multifaceted terms and open for a deeper investigation of factors influencing a person's location on the ease/dis-ease continuum. The movement up and down the breakdown path can also be examined for typical paths (Antonovsky, 1979).

The sense of coherence (SOC) and the SOC scale

The sense of coherence is:

A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli 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 the stimuli; and (3) these demands are challenges, worthy of investment and engagement (Antonovsky, 1987, p. 19).

Antonovsky (1987) was convinced that a sense of coherence in life determines whether a person stays on his/her level on the continuum between healthy/unhealthy, and move toward the healthy end. The SOC scale is the measurement of SOC through originally 29 items belonging to the three components: (1) comprehensibility, (2) manageability and (3) meaningfulness (examples of items below used with permission from copyright holder).

Comprehensibility

Comprehensibility expresses the core of the first definition of salutogenesis. The comprehensibility component contains items of to what degree a person experience internal and external stimuli as cognitive comprehensible, orderly, cohesive, structured and clear. The opposite experiences are chaotic, disorganized, random, unexpected and incomprehensible. High scores on the comprehensibility component give expectations of predictability in the future, or at least if surprises appear they are explainable and can be placed in a context (Antonovsky, 1987, pp. 16-17). Example: "When you talk to people, do you have the feeling that they don't understand you?" (Antonovsky, 1987, p. 190).

Manageability

The manageability component contains items expressing to what degree a person experiences being in possession of, or having resources available through others, to manage demands from bombarding stimuli. High scores on manageability tells that a person is managing adversity in life without feelings of being a victim or being treated unfair (Antonovsky, 1987, pp. 17-18). Example: "Do you have the feeling that you're being treated unfairly?" (Antonovsky, 1987, p. 191).

Meaningfulness

The third component, meaningfulness, is about to what degree life is emotionally understandable, and about demands and challenges being appreciated commitments and efforts handled directly without experiences of being bothersome. High score shows a person being willing to meet challenges in a meaningful way and handling challenges in a proper way (Antonovsky, 1987, pp. 18-19). Example: "Do you have the feeling that you don't really care about what goes on around you?" (Antonovsky, 1987, p. 190).

A seven point Likert scale (Ringdal, 2011) with end point ratings from *never* to *always* is used to answer the items. By adding all items into one score, the score ranges from 29 to 203 for SOC-29. A high score means the SOC is strong. Before final calculation of the score 13 items have to be reversed (Antonovsky, 1987). Antonovsky later developed a version with 13 items (SOC-13) that proves to be as valid and reliable as the original version, some of the items in SOC-13 also have to be reversed (Antonovsky, 1993).

Three kinds of life experiences contribute to the shaping of the strength of SOC. These are consistency, underload-overload balance, and participation in socially valued decision-making. Persons with a strong SOC will meet challenges with a desire to be motivated to cope (meaningfulness), they believe that the challenge is understood (comprehensibility) and they believe that resources to cope are available (manageability). In any given situation they are able to reach out for appropriate resources in the setting. Although making a mistake, a strong SOC provides a good basis for learning, instead of repetition of mistakes. What matters in the development of SOC is to have life experiences that lead to a strong SOC. Questions of what gives a sense of meaningfulness, what kind of resources are appropriate, in whose hands the resources are and how much information is needed to comprehend vary greatly from culture to culture and from situation to situation (Antonovsky, 1996).

Unfortunately the SOC scale is often being used in research separate from the full concept of the salutogenesis. This has led to an emphasis on malfunction and disease instead of health and health promotion (Mittelmark & Bull, 2012). The SOC instrument has been suggested used as a screening instrument. However, this is far not recommended because there is a risk of stigmatising individuals reflecting on the strength of the individual level. SOC should rather be used as a systematic orientation and perspective in the daily activities and actions of the professionals (Eriksson & Lindström, 2005). Antonovsky (1979) stated, "...how one poses the question is crucial to the direction one takes in looking for the answers" (p. 12). In order to create a conscious change of SOC one has to consider one's inner feelings, immediate interpersonal relations, major daily activities and existential issues, and for a possible change connect to the institutional, social and cultural frames. Reflexion is not enough; there is a necessary call for action! (Antonovsky, 1987).

Validity and reliability of the SOC scale

There are usually no difficulties to respond to the SOC scale and the face validity seems to be acceptable (Eriksson & Lindström, 2005). The items are interesting, challenging and they provoke thoughts. The scale is tested on all social classes and both genders, on adults at all ages, on adolescents and in a few studies on children as young as 10 years old (Antonovsky, 1993), further, in face to face interviews of 8 and 9 years old (Løndal, 2010). Less than 15-20 minutes is required to complete the scale, with the SOC-13 version, 5 minutes less (Antonovsky, 1993). The SOC scale has been used in 50 countries in 44 different languages,

and is a cross culturally applicable instrument (Chittem, Lindström, Byrapaneni, Espnes, 2015).

Internal consistency: In a variety of populations, cultures and languages, the internal consistency of SOC is consistently high (Antonovsky, 1993). One's position in the social structure and the surrounding culture affect the development and shape of experiences (Antonovsky, 1996). A systematic review of SOC in relation with quality of life, show that SOC is valued as an instrument for intervention and treatment, and as a resource that enhances quality of life (Eriksson & Lindström, 2007).

Consensual validity: The consensual validity, which refers to if experts agree that a measure is valid, is moderate. Modification of the scale is performed by explanations of the original version being too long, or attempting to reach a better coherence with other measures (Eriksson & Lindström, 2005), for example using a five alternative version rather than the seven original alternatives (Antonovsky, 1993).

Construct validity: The construct validity of the SOC scale is not completely clear. Antonovsky suggested a one factor solution, while various research has been looking for a three factor solution based on the three components; comprehensibility, manageability and meaningfulness. Five factor solutions and second order factor solutions have also been studied (Eriksson & Lindström, 2005; Gana & Garnier, 2000; Moksnes & Haugan, 2013; Naaldenberg, Tovi, Esker, & Vaandrager, 2011). Even though it is possible to separate the SOC into two highly correlated factors, one global factor appears to be the best (Antonovsky, 1993). No general pattern for the three dimensions has emerged, therefore, it might be wise to follow Antonovsky's intention of a one factor solution (Eriksson & Lindström, 2005). SOC correlates with good health (Eriksson & Lindström, 2006), and is psychometrically comparatively sound (Eriksson & Lindström, 2005). When analysing relationships between SOC and health, one should study the square of the correlating coefficient, not only the correlations (Eriksson & Lindström, 2006).

Criteria validity: Criteria validity shows that the SOC scale correlates moderately to instruments measuring life events. A strong SOC is related with good quality of life, and seems to be connected to constructive attitudes, behaviours and well-being (Eriksson & Lindström, 2005; Moksnes, 2011). The relatively high negative correlations to anxiety and

depression and high positive correlation to optimism and self-esteem is striking (Eriksson & Lindström, 2005, p. 463).

Predictive validity: The predictive validity of SOC, whether strong or weak, is mainly high, thus, SOC predicts the outcome of a person's future health. Such results are seen in longitudinal studies (Eriksson & Lindström, 2005).

Stability of SOC

Antonovsky stated that SOC would be more or less stable in early adolescence, and full stability attained around the age of 30. He was not precise in specifying developmental conditions (Geyer, 1997). The SOC seem to be not as stable as Antonovsky first assumed, but comparatively stable over time, at least for an initially strong SOC. SOC seems to increase through the life span, the older the stronger is the SOC. In 2005 there were still only a few longitudinal studies reporting test-retest reliability, but results from these are in line with Antonovsky's assumption that SOC stabilize towards the end of early adulthood (Eriksson & Lindström, 2005). Since 2005 the number of longitudinal studies has grown (Kröniger-Jungaberle & Grevenstein, 2013; Langeland, 2013).

The SOC instrument is proved to be reliable, valid, feasible and cross-culturally applicable, and there is no need for further testing of the existing original instrument. The instrument should rather be consolidated and standardised. With a change of focus from problems and obstacles to resources, the SOC concept offers a systematic health promoting orientation and perspective if implemented in daily activities and actions of professionals (Eriksson & Lindström, 2005, p. 463).

The Children's Orientation scale

Margalit was invited by Antonovsky to develop The Children's Orientation scale (C-SOC) (Appendix 1), an adaption of the SOC scale. Antonovsky assumed that the children's scale would be less stable than the adult scale (Idan & Margalit, 2011). The C-SOC scale reflects SOC through 16 items including the three components; comprehensibility, manageability and meaningfulness. Three extra items are included as distracters. A four point Likert scale (Ringdal, 2011) with end point ratings from 1= never to 4= always is used. Before calculating the score, 7 of the 16 items must be reversed. By adding all items in one score, the score goes

from 16 to 64, where high score means strong SOC and low score means weak SOC. C-SOC is intended for children aged 5-10, and has been revised and field tested in Israeli samples, and later translated into English and other languages (Appendix 1).

Many additional interviews were followed to refine the C-SOC scale, finally, "... children understood the statements and were able to provide meaningful answers" (Idan & Margalit, 2011, p. 7). Studies at ages 4.9-6.3 years showed some flexibility in SOC. In children with disabilities, delayed cognitive functions, and delayed academic performance education and development support resulted in a stronger SOC. The SOC construct was identified as meaningful in the development of children. It also differentiated between children with normal development and children at high risk (Idan & Margalit, 2011). In order to empower children Margalit (1994) developed a conceptual system based on the salutogenic model, and further described an optimal system for promoting change in children's functioning in terms of "... a secure, developmentally flexible and fundamentally caring environment" (p. 181). The empowerment concept is based on the process of supporting people in the process of strengthening and believing in one's own coping resources (Schafft, 2013). Through a systemic salutogenic approach where parents, teachers and peers learn to be effective change agents, children can learn to cope (Margalit, 1994). Special attention should be given to SOC as a protective factor. Weaker SOC is related to higher levels of loneliness, lower social status, lower academic functioning and higher levels of aggression. In studies of children in 2nd to 6th grade, SOC provided a unique and relatively stable index of children's social and emotional adjustment and wellbeing. Most children with a strong SOC are able to transform potential resources into real life and thereby promote and experience well being (Idan & Margalit, 2011).

Development of SOC

Development in childhood differs from adolescence and adulthood regarding cognitive skills, language and communication, self-regulation and socio-emotional functioning. Therefore child professionals, such as school nurses and teachers, need to have a good knowledge of developmental theories. This also includes cultural competences, understanding variations in beliefs, attitudes and values (Mowder, Rubinson, & Yasik, 2009). The relation between SOC and health are the same in children and young people as in the adult population, and improving health relates to a stronger SOC (Eriksson & Lindsström, 2006).

Establishing a sense of coherence: The development of SOC is important in the understanding of child health. This can be described using the SOC components. If a child realizes that physical and social environments are rather stable over time and variations of internal and external stimuli and reactions are familiar and routine, a sense of *comprehensibility* is established. Sense of *meaningfulness* and codetermination depends on a complex number of experiences. Contributing factors are consistent and coherent stimuli and responses; they construct the child's perception of the structure and quality of the response. The sense of *manageability* is affected by an adaptation of requirements in relation to the developmental level. When the child is able to choose how to meet a requirement or not, the experience will be of vital importance to the underload-/overload balance. In order to create a good foundation for a strong sense of manageability, balanced reactions towards the child is required (Antonovsky, 1987, pp. 94-101)

Attachment: Attachment theories provide a solid foundation for the understanding of child development in their environments (Antonovsky, 1987). Attachment has a strong emotional tie to the behaviour system that regulates emotional distress in the threatening situations (Turner-Cobb, 2014). There is a biological predisposition in children to promote closeness and contact with parents and other close persons. This is an essential element in the creation of stability in a child's life world (Antonovsky, 1987; Erikson, 1968a). In order to be able to create close relationships one's early childhood attachment experiences continue to have an influence throughout life (Turner-Cobb, 2014). As Bowlby (1969) stated: "A young child's experience of an encouraging, supportive and co-operative parent, gives a sense of being worthy, a belief in the helpfulness of others, and creating a positive model on which to build future relationships" (p. 378). This also promotes a sense of competence (Bowlby, 1969). In accordance to SOC development it is important to ask to what extent the attachment occurs and what the consequences are (Antonovsky, 1987). Children develop a sense of commitment, control and challenge in a family atmosphere that breed hardiness through parents being supportive, permitting and viewing change as a constructive asset. This also builds confidence in the child to be capable to master and approach life events with a belief that one can solve and have influence to control them (Maddi & Kobasa, 1991). Insecure attachment causes an experience of loneliness that affects one's behaviour in close relationships later in life. The degree of attachment affects one's tendency to see the world as comprehensive, manageable and meaningful, as well as one's sense of hope and effort (Al-Yagon, 2012). Insecure attachment in social relations is likely to be a risk factor for socio-

emotional problems, while a secure attachment leads to lower sense of loneliness and a higher sense of coherence among children (Al-Yagon, 2011; Al-Yagon & Mikulincer, 2004a). In school aged children extra-familial persons such as teachers, peers and non-familial caregivers can serve as attachment persons and become a source for security, providing care and support for children in need, when they explore and learn new skills (Al-Yagon & Margalit, 2007; Erikson, 1968b; Løhre, 2012). Studies of teacher-child relations showed that secure attachment patterns predicted for children's SOC and feeling of loneliness (Idan & Margalit, 2011). Attachment-based factors can have damaging effect of learning disorders on children's socio-emotional adjustment (Al-Yagon & Mikulincer, 2004b).

The sense of self-confidence and self-efficacy: The sense of self-confidence is formed in early phases of life affected by the care and love of intimate persons (mother, father, caretakers). These are important resources in a child's ability to meet future demands. It is the emotional relation to oneself to be able to accept and believe in one's own personal potential (Krause, 2011). This is also described as perceived self-efficacy which "... refers to beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1995). To develop a sense of self-confidence or self-efficacy it is important to experience a sense of belonging, which is the emotional relation to other people, that enables one's capacity to get help and feedback (Krause, 2011). Four major processes in life are regulated by the efficacy beliefs; cognitive, motivational, affective and selection processes (Bandura, 1995). Contemporary brain research proves there are connections between self-confidence and the cultural environment from new brain research. The sense of self-confidence is affected by attending to school, and plays a key role in the development and maintenance of health (Krause, 2011). There are also age differences in one's ability to social understandings, and this may be influenced by cultural variations (Miller & Kinsbourne, 2011).

Cognitive development: There is a general understanding that cognitive development stems from an interaction between biological and environmental factors. However, there are also questions of how variations in the cultural environment impact the development of the brain and its use (Miller & Kinsbourne, 2011). Children see themselves as in the mirror of society's expectations, and in Western society a good cognitive achievement and physical activity are highly valued (Honkinen, Suominen, Välimaa, Helenius, & Rautava, 2005).

Stress, vulnerability and the development of resistance: In line with the health ease/dis-ease continuum (Antonovsky, 1987), there is an understanding in health psychology literature positioning the concepts of health and illness as end points in a spectrum (Turner-Cobb, 2014). Childhood exposure to various external stimuli and demands in different social environments affects the sense of coherence if there are conflicting stimuli and demands (Antonovsky, 1987). Vulnerability comes from biological, psychological and sociological circumstances, both outside and within the schools system (Midthassel, Bru, Ertesvåg, & Roland, 2011). Psychological stress, which is a common aspect of contemporary society is defined as "...a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984). This can be experienced in multiple forms, and it's effect on health raises serious concern (Hamer & Boutcher, 2006). The human capacity to respond to physical or mental load is affected by genetics, learned experiences and to physiological reactions to the specific load (Netterstrøm, 2007). Children at risk of developing learning disabilities experience mental stress related to the experiences of being less accepted by peers, feelings of loneliness and feeling less confident about their world. Accumulating failures among these children can gradually weaken their sense of coherence and constitute social isolation (Most, Al-Yagon, Tur-Kaspa, & Margalit, 2000). It is therefore important that teachers and school nurses are prepared and given competence to meet the demands of vulnerable children. This requires expertise in the delivery of certain school subjects, skills and reflection practices (Midthassel et al., 2011).

Resilience: Resilience is defined as "...a dynamic developmental process encompassing the attainment of positive adaption within the context of significant adversity" (Cicchetti, 2010). Resilience is interesting since it addresses the question of children coping well despite of adversity (Turner-Cobb, 2014). Resilience factors are important in childhood development, and the social experience of children is better understood by investigation through the study of resilience and coherence paradigms, that also have a potential to empower children through educational interventions (Margalit, Al-Yagon, & Neuberger, 1996). School education programmes need to be developed in order to give, for example, opportunities for physical activities, also for children without any athletic ambitions. This would improve their feelings of acceptance both in social relationships and the school and class climate (Honkinen et al., 2005).

Effects of stress: Mental or emotional distress is often somatised (Askew & Keyes, 2006). In secondary school aged children, subjective health complaints like headache, backache and abdominal pain are common. Evidence speaks for a direct relationship with SOC (Torsheim, Aaroe, & Wold, 2001). In our individualistic world, physical symptoms are the appropriate problem to present to doctors (Askew & Keyes, 2006).

Stress accumulated from psychosocial factors' seems to influence on physical health through the activation of the central nervous systems and endocrine or hormonal alterations or behavioural change. The experience of stress in early life relates to health and illness outcomes building resilience or vulnerability (Turner-Cobb, 2014). This can be compared to the ease/dis-ease continuum of salutogenesis (Antonovsky, 1987). Stressful experiences in vital stages of development are also described in the theory of allostasis. The allostatic load, which is an imbalance in allostatic systems, refers to where the accumulation of lifetime stress develops. This might lead to a physiological change in the human system caused by traumatic stress experiences (Netterstrøm, 2007; Turner-Cobb, 2014). A long lasting load of stressors or severe stressors leads to the risk of stress-conditional disease, while social support reduces this kind of risk (Netterstrøm, 2007). To counteract such conditions a psychosocial and empathic approach should be developed, including family and society in the causal chain and treatment - overall reducing psychosocial distress (Askew & Keyes, 2006).

Coping strategies: According to Compas, Jaser, Dunn and Rodriguez (2012) coping is, "...a collection of purposeful, volitional efforts that are directed at the regulation of aspects of the self and the environment under stress"(p. 458). Efforts to manage stressful demands regardless of outcome should be included in coping. The effect on a given encounter, and it's long-term effect, is what determines efficacy or appropriateness of a strategy (Lazarus & Folkman, 1991, p. 201). According to problem-focused and emotional focused coping, cognitive and behavioural efforts are in constant dynamic change, as functions of a continuous appraisal and reappraisal of the person-environment relationship, which is also changing. Sometimes the person changes and some times the environment changes. Coping strategies like tolerating difficulties by minimizing, accepting or ignoring them, are just as important as problem solving strategies that aim at mastering the environment (Folkman & Lazarus, 1991). Emotions, defined by Folkman and Lazarus (1991) as, "...complex, organized psycho-physiological reactions of cognitive appraisals, action impulses, and patterned somatic reactions" (p. 209), are important characteristics of a coping process. Primary appraisals

raises the question of “What do I have at stake in this encounter?” and secondary appraisals “What can I do? What are my options for coping? And how will the environment respond to my actions?” (Folkman & Lazarus, 1991, pp. 210-211).

Special areas that need attention: Empirical evidence shows that children are able to make subtle distinctions between the concepts of health and illness, and that the contrast between health and illness differ, further, this perception develops with age. The sensitivity to the exposure to various types of stressor and coping abilities are dependent on the age and developmental stage of the child and varies individually. This defines whether or not the event is stressful (Turner-Cobb, 2014). Empirical studies, similar to the study of GRRs, can bring out empirical evidence on what can make children flourish such as; loving families, friends, constructive lifestyles, solid values which give meaning to life, good schools, good mental health and enough money to live without shame (Layard & Dunn, 2009). Children with emotional difficulties or social passivity are in need of special attention. Passivity or concentration difficulties might be internalized difficulties like depression, anxiety, psychosomatic difficulties or social withdrawal. Sadness and depression are expressions of lack of coping strategies to manage challenges. It is recommended to form supportive, stable relations and a structured educational environment that give children an opportunity to form a sense of predictability and control. The relation to one’s teacher is of great importance for the child’s education and well-being, further, support from fellow students may increase children’s self-esteem and ability to cope (Bru, 2011).

Children who have experiences of instability or break up in families are more exposed to psychosocial difficulties like low academic achievement, behavioural problems, psychological adaption, self-esteem and conflicts between parents (Lindström, 1992). Parents with mental disease or addiction problems disturb the child’s development of attachment. A supportive and safe environment in schools can improve such children’s conditions and development (Størksen & Thorsen, 2011). Children with language difficulties are vulnerable to rejection from peers and run a risk of being bullied. Methods for finding contexts where the child experiences success that also supports the child’s ability to reflect on why he/she is successful, is valuable (Løge, 2011). Immigrants are more vulnerable to the development of depressive symptoms than others. Girls are more vulnerable than boys. Immigrant boys are also more often identified as the ones bullying or being bullied. Integration and development of good relationships for immigrant children is an important area to focus on (Fandrem,

2011). Educational institutions like schools are potential caretakers that assist children who are victims of bullying. Pedagogic principles and methods with therapeutic effects in positive and constructive educational setting are recommended (such as story-telling – using sentences and stories to place the bullying in the past and recoding them to avoid a de ja vu). Teachers must improve their competences in effects of bullying and always be prepared to meet the needs of children if conversation on difficulties are arranged, by increasing their competencies in effects of being bullied (Idsøe & Idsøe, 2011). Unfortunately contemporary technological development has increased the possibilities of bullying. The responsibility of the school community is to help children in their development, including a conscious effort to train and practice coping strategies to fight such difficulties (Auestad, 2011). Being bullied can create a stigmatisation for the victims, causing paths of breakdown that are difficult to stop because of the lack of coping resources. The experience of inclusion in the school community, especially in class, constitutes an important basis for the building of experiences of being accepted, appreciated and belonging to a community. Children have a special sense of how teachers relate to them, observing whether they are supportive or neglecting or trivializing the child's problems. Experience of neglect in the family makes the safe connections to adults outside the family especially sensitive and important in order to enable an improvement of the child's situation. In this context teachers, and school nurses, can make a difference. Early interventions are important, since social inclusion- and exclusion-mechanisms start already in nursery schools. The development of an open school-home-cooperation is of great value (Veland, 2011). Paying attention to subcultures in class is important to prevent negative outcomes. The teacher's role is of utmost importance for how the class community develops. Studies on how the teacher's can execute leadership in class promoting an all-inclusive community for every student should be undertaken (Roland, 2011). A possible method for studies of this kind is action research (Rust & Clark, 2003).

Contrary to the many reports on interventions in most areas of childhood development, there is a weak evidence base on effectiveness. For this, psychometrically sound instruments are needed (Mowder et al., 2009), such as the SOC and the C-SOC scales. Before discussing the possible advantages of using the adjusted C-SOC scale as guidance for health promotion activities and interventions among children in school nursing services (Article II), action research is presented for use as a framework for the implementation of a salutogenic strategy approach in health promotion in schools.

ACTION RESEARCH

Traditions with goals to develop measures for social equity have inspired development of action research. It is a strategy for developing new measures and interventions through implementation and evaluation during the research period (Malterud, 2011).

Empirics of action research and salutogenesis

A context where researchers are in cooperation with children, and the children perform self-determined and self-planned physical activity using Hellison's Teaching Responsibility Model, is using physical activity to change attitudes supporting and promoting a developing sense of coherence and health inducing wellbeing. This provides additional support for the salutogenic model and demonstrates the importance of the physiological resource component (Bronikowski & Bronikowska, 2009). Because of increasing social problems, there is a need to teach life skills in programmes for children. For instance a "Teaching Personal and Social Responsibility (TPSR) programme" turned a boy with no hopes for his future into being selected as the PAL youth of the year. This programme includes five words of importance, respect, self-control, leadership, participation and effort (Hellison, 2011). Action research with a salutogenic orientation among female patients and their doctors was conducted using a specific communicative research approach, to identify and mobilize personal health resources resulting in a strategy for a resource oriented discourse (Malterud & Hollnagel, 1998). This is here (Fig. 4) modified to fit the school nurse – child relationship.

In essence the key question is to ask for strengths, what useful and important experiences of the child can be used in the process, finally, what strong sides the child itself usually uses to experience well-being (Malterud & Hollnagel, 1998).

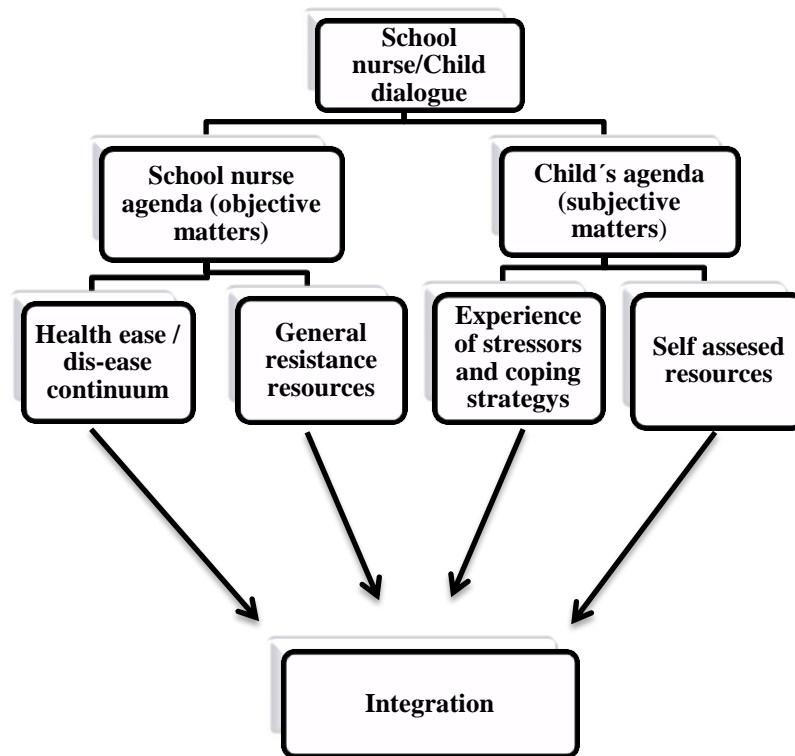
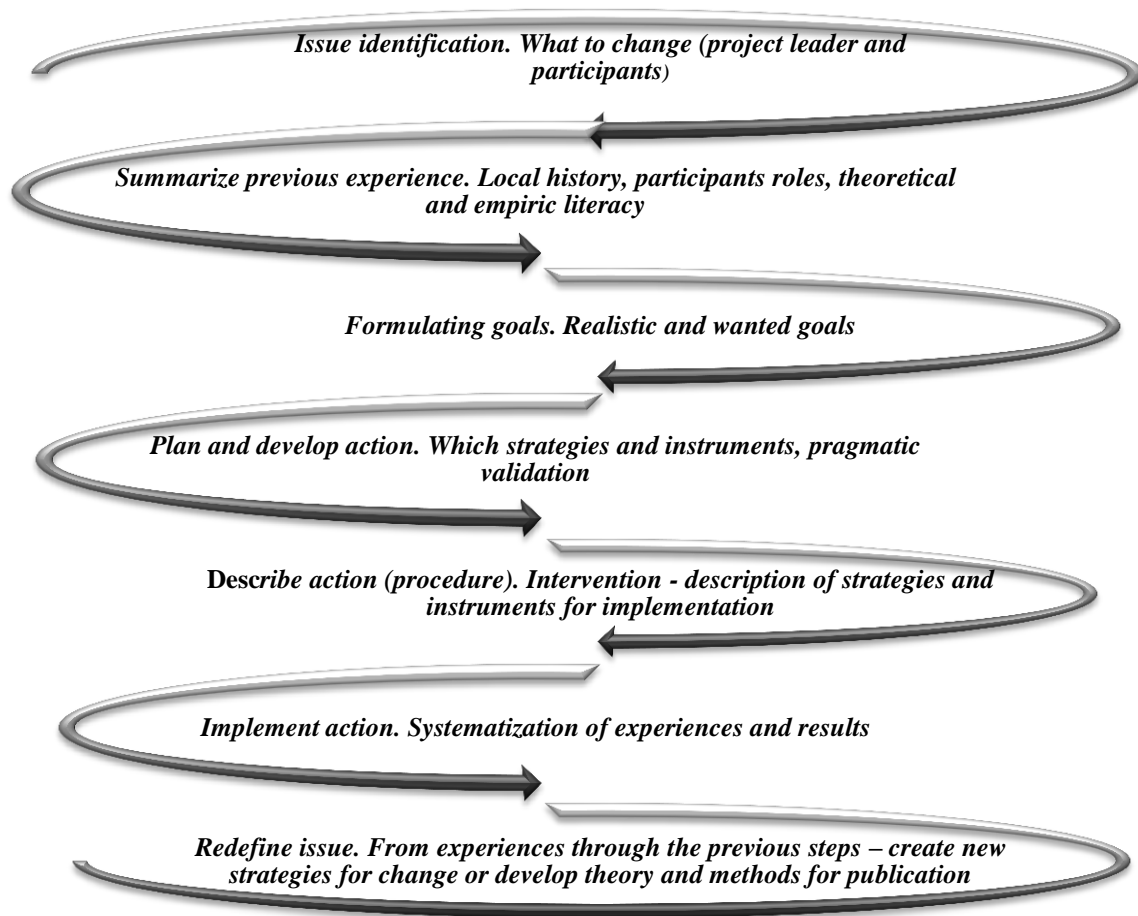


Figure 4: The Health resource/risk balance model modified from Malterud & Hollnagel (Malterud & Hollnagel, 1998, p. 16), to fit school nurse – child relationship.

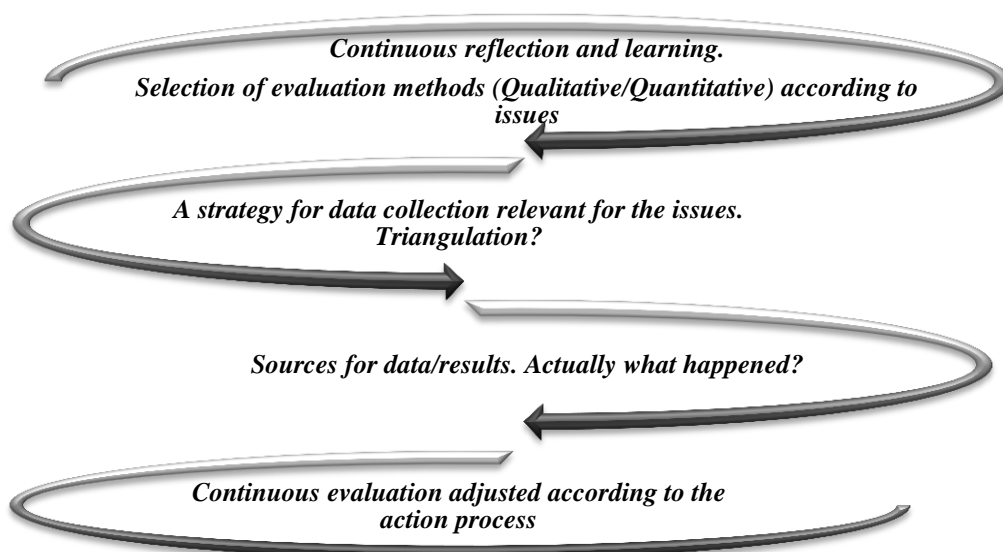
The concept of action research

Action research gives an opportunity to create changes in social systems and is an approach of social science research closing up to political activity. It is an exploration of reflective practice through considerations of mutual relation between action, knowledge development, and implementation of new knowledge and change of practice. Action research can be described in two parts. Firstly, the action aimed at implementing intentional change, and secondly, the research describing, analysing and evaluating the process. What is important for the validity of the research results is that the project plan is given enough time and space for systematic data collection and registration during the research period. In case of external evaluators it is important to have a good cooperation within the working group to avoid pressure that limits any part of the research project. The action spiral shows seven steps where each step represents parts of the schedule, and at the same time function as a checklist for data collection and evaluation preparation. The parallel research spiral shows continuously reflection and evaluation through the process (Malterud, 2011). The stages and the connections are shown in Figures 5 and 6.

The Action spiral - Systematically description



The Research spiral - Critical reflection



Figures 5 and 6: Action research spirals moderated after Malterud (2011, p. 158)

Pragmatic validity is the evidence for the usability of the knowledge described. The applicability of the strategies and the instruments chosen for action research must be controlled to make sure they induce a wanted and realistic change. To receive a scientific recognition but also addressing applicability in practice demands different ways of delivering the study. In general there is a difference between the required format of publications for scientific recognition and on the other hand practical applicability. To capture the affecting factors through the process, the evaluation design must follow the action process. In development of scientific evidence suitable for community medicine and clinical research, action research is an actual alternative. It is of utmost importance to ask questions that capture the developing process and then demonstrate how the instruments and the strategy of the intervention affect the process (Malterud, 2011, p. 163).

CONCLUSION

This paper has presented the theoretical background of The Children's Orientation scale (C-SOC) (Appendix 1), an adaption of Antonovsky's Orientation to Life scale (SOC) (Antonovsky, 1987). The SOC and the C-SOC scales are recommended used in consideration of the full concept of the salutogenesis. The health promoting intention of the theory can be executed at it's best when a systematic orientation and perspective is used in the everyday activities and actions of the professionals (Eriksson & Lindström, 2005). In every setting it is important to consider one's inner feelings, immediate interpersonal relationships, one's major activities and existential issues (the core GRRs), and to connect the possibility for change to the institutional, social and cultural frames (a system approach) (Antonovsky, 1987). Action research is a strategy that develops new measures and interventions within the implementation and evaluation of the on-going research period (Malterud, 2011). It is here suggested that action research could be a suitable approach in order to implement a salutogenic strategy aiming at a comprehensive health promotion intervention for school aged children in the context of school nursing services. To realise this, both discussions on issues that create problems, and what actions and resources are needed to solve them, are necessary. The cooperation with teachers is of key importance since the teachers have continuous daily contact with the children. The whole school approach is probably most effective for health promotion in schools, but this Master's thesis centres on school nursing services.

References

- Al-Yagon, M. (2011). Father's Coping Resources and Children's Socioemotional Adjustment Among Children With Learning Disabilities. *Journal of learning disabilities, 44*(6), 491-507.
- Al-Yagon, M. (2012). Subtypes of Attachment Security in School-aged Children With Learning Disabilities. *Learning Disabilities Quarterly, 35*(3), 170-183. doi: 10.1177/0731948712436398
- Al-Yagon, M., & Margalit, M. (2007). Loneliness, sense of coherence and perception of teachers as a secure base among children with reading difficulties. *European Journal of Special Needs Education, 21*(1), 21-37. doi: 10-1080/08856250500268619
- Al-Yagon, M., & Mikulincer, M. (2004a). Patterns of Close Relationships and Socioemotional and Academic Adjustment Among School-Age Children with Learning Disabilities. *Journal of Learning Disabilities Research & Practice, 19*(1), 12-19.
- Al-Yagon, M., & Mikulincer, M. (2004b). Socioemotional and Academic Adjustment Among Children with Learning Disorders: The Mediation Role of Attachment-Based Factors. *The Journal of Special Education, 38*(2), 111-123.
- Antonovsky, A. (1979). *Health, stress and coping*. San Fransisco & London: Jossey-Bass Inc. Publishers.
- Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well* (1 ed.). San Francisco: Jossey-Bass Inc. Publishers.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Journal of social science and medicine, 36*(6), 725-733.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International, 11*(1).
- Askew, R. A., & Keyes, C. L. M. (2006). Stress and somatization: A sociocultural perspective. In D. Johns (Ed.), *Stress and it's impact on society* (pp. 117-132). New York: Niva Science Publishers, Inc.
- Auestad, G. (2011). Ny teknologi - en utvidelse av mobbingen? In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies*. New York: Cambridge University Press.
- Bowlby, J. (1969). *Attachment and Loss: Attachment* (Vol. 1). London: PIMLICO.
- Bronikowski, M., & Bronikowska, M. (2009). Salutogenesis as a framework for improving Healthresources among adolescent boys *Scandinavian Journal of Public Health, 37*(5), 525-531.
- Bru, E. (2011). Emosjonelt sårbare og sosialt passive elever. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Chittem, M., Lindström, B., Byrapaneni, R., Espnes, G. A. (2015). Sense of coherence and chronic illnesses: Scope for research in India. *Journal of Social Health and Diabetes 3*(2), 79-83. doi:10.4103/2321-0656.152803.
- Chuengsatiansup, K. (2003). Spirituality and health: an initial proposal to incorporate spiritual health impact assessment. *Enwironmental Impact Assessment review, 23*(1), 3-15. doi: 10.1016/S0195-9255(02)00037-9.
- Cicchetti, D. (2010). Resilience under conditions of extreme stress: a multilevel perspective. *World Psychiatry, 9*(3), 145-154.

- Compas, B. E., Jaser, S. S., Dunn, M. J. & Rodriguez, E. M. (2012). Coping with chronic illness in childhood and adolescence. *Annual Review of Clinical Psychology*, 8, P. 455-480. doi: 10.1146/annurev-clinpsy-032511-143108.
- Erikson, E. H. (1968a). *Barndommen og samfunnet*. Chp VI. Oslo: Gyldendal Norsk Forlag.
- Erikson, E. H. (1968b). *Identity. Youth and Crisis*. Chp 4. London: Faber & Faber.
- Eriksson, M., & Lindström, B. (2005). Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiology and Community Health*, 59, 460-466. doi: 10.1136/jech.2003.018085
- Eriksson, M., & Lindström, B. (2006). Antonovsky's sense of coherence scale and relation with health: a systematic review. *Journal of Epidemiology and Community Health*, 60, 376-381. doi: 10.1136/jech.2005.041616
- Eriksson, M., & Lindström, B. (2007). Antonovsky's sense of coherence scale and its relation with quality of life: a systematic review. *Journal of Epidemiology and Community Health*, 61, 938-944. doi: 10.1136/jech.2006.056028
- Fandrem, H. (2011). Sosiale og emosjonelle utfordringer som følge av migrasjon. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Folkman, S., & Lazarus, R. S. (1991). Coping and emotions. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 209-227). New York: Columbia University Press.
- Gana, K., & Garnier, S. (2000). Latente structure of the sense of coherence scale in a French sample. *Personality and Individual Differences*, 31, 1079-1090.
- Geyer, S. (1997). Some conceptual considerations on the sense of coherence. *Journal of social science and medicine*, 44(12), 1771-1779.
- Hamer, M., & Boutcher, S. H. (2006). Stress-reactivity and health: The impact of exercise and nutrition. In D. Johns (Ed.), *Stress and its impact on society* (pp. 57-78). New York: Nova science publishers Inc.
- Hellison, D. (2011). *Teaching personal and social responsibility through physical activity* (3 ed.). Champaign: Human Kinetics
- Honkinen, P.-L. K., Suominen, S. B., Välimaa, R. S., Helenius, H. Y., & Rautava, P. T. (2005). Factors associated with perceived health among 12-year-old school children. relevance of physical exercise and sense of coherence. *Scandinavian Journal of Public Health*, 33, 35-41. doi: 10.1080/14034940410028307
- Idan, O., & Margalit, M. (2011). The salutogenic orientation: Childrens sense of coherence and hopeful thinking in education of children and adolescents. *Teachings education periodical*, 4, 4-17.
- Idsøe, T., & Idsøe, E. C. (2011). Hva kan pedgoger/skolepersonell gjøre med stress og unge som mobbes? In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Krause, C. (2011). Developing sense of coherence in educational context: Making progress in promoting mental health in children. *International Review of Psychiatry*, 23(6), 525-532. doi: 10.3109/09540261.2011.637907
- Layard, R., & Dunn, J. (2009). *A Good Childhood: Searching for Values in a Copetitive Age*. London: Penguin.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisals and coping*. New York: Springer Publishing Company.
- Lazarus, R. S., & Folkman, S. (1991). The concept of coping. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 189-206). New York: Columbia University Press.
- Lindström, B. (1992). Children and divorce in the light of salutogenesis-promoting child health in the face of family breakdown. In B. Lindström (Ed.), *The Essence of*

- existence. On the quality of life of children in the Nordic countries.* Göteborg: The Nordic school of public health.
- Lindström, B., & Eriksson, M. (2010). *Hitchhikers guide to salutogenesis* (4 Ed.). Helsinki: Folkhälsan Research Centre, Health Promotion Research and the IUPHE Global Working Group on Salutogenesis (GWG-SAL).
- Løge, I. K. (2011). Språkvanskar og sosioemosjonelle vanskar. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Løhre, A. (2012) School wellbeing among children: The dialogue and possibilities. In: S.T. Innstrand (2012). *Health Promotion - theory and practice*. Del IV, kap. 17. Research Centre for Health Promotion and Resources HIST/NTNU. Trondheim: NTNU-trykk
- Løndal, K. (2010). Children´s Lived Experience and their Sense of Coherence: Bodily play in a Norwegian After-School Programme. *Journal of Child Care Practice*, 16(4), 391-407. doi: 10.1080/13575279.2010.498414
- Maddi, S. R., & Kobasa, S. C. (1991). The development of hardiness. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 245-257). New York: Columbia University Press.
- Malterud, K. (2011). *Kvalitative metoder i medisinsk forskning*. Oslo: Universitetsforlaget.
- Malterud, K., & Hollnagel, H. (1998). Talking with woman about personal health resources in general practice. *Scandinavian Journal of Primary Health Care*, 16, 66-71.
- Margalit, M. (1994). *Loneliness among children with special needs: Theory, research, coping and intervention* (1 ed.). New York: Springer-Verlag.
- Margalit, M., Al-Yagon, M., & Neuberger, S. (1996). Mother´s Coherence, Family Climate and Preschool Children with Learning Disabilities: Risk and Resilience. *Thalamus*, 16(1).
- Midthassel, U. V., Bru, E., Ertesvåg, S., & Roland, E. (2011). Sårbare barn og unge i barnehage og skole. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker* (pp. 11-15). Oslo: Universitetsforlaget.
- Miller, J. G., & Kinsbourne, M. (2011). Culture and Neuroscience in Developmental Psychology: Contributions and Challenges. *Child Development Perspectives*, 0(0), 1-7. doi: 10.1111/j.1750_86.2011.00188.x
- Mittelmark, M. B., & Bull, T. (2012). Forord til den norske utgaven. In A. Antonovsky (Ed.), *Helsens mysterium* (pp. 5-10). Oslo: Gyldendal akademiske.
- Moksnes, U. K. (2011). *Stress and health in adolescents: The role of potential protective factors*. (PhD), Norwegian University of science and technology, Trondheim.
- Moksnes, U. K., & Haugan, G. (2013). Validation of the Orientation to Life Questionnaire in Norwegian Adolescents, Construct Validity Across Samples. *Social Indicators research*, 114(3). doi: 10.1007/s11205-013-0536-z
- Monat, A., & Lazarus, R. S. (1991). Stress and Coping - Some Current Issues. In A. Monat & R. S. Lazarus (Eds.), *Stress and Coping* (3 ed., pp. 2-15). New York: Columbia University Press.
- Most, T., Al-Yagon, M., Tur-Kaspa, H., & Margalit, M. (2000). Phonological Awareness, Peer Nominations, and Social Competence Among Preschool Children At Risk for Developing Learning Disabilities. *International Journal of Disability, Development and Education*, 47(1), 89-105. doi: 10.1080/103491200116156
- Mowder, B. A., Rubinson, F., & Yasik, A. E. (2009). Current Status and Future Directions. In B. Mowder, F. Rubinson, & A. e. Yasik (Eds.), *Evidence - Based Practice in Infant and Early Childhood Psychology*: JOHN wiley & Sons, Inc.
- Netterstrøm, B. (2007). *Stresshåndtering* (Vol. 1). København: Hans Reitzels Forlag.

- Naaldenberg, J., Tovi, H., Esker, F. v. d., & Vaandrager, L. (2011). Psychometric properties of the OLQ-13 scale to measure Sense of Coherence in a community-dwelling older population. *Health and Quality of Life Outcomes*, 9(37), 1-9. doi: 10.1186/1477-7525-9-37
- Ringdal, K. (2011). *Enhet og mangfold* (Vol. 2). Bergen: Fagbokforlaget Vigmostad & Bjørke AS.
- Roland, E. (2011). Myndig klasseledelse og sårbare elever. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Rust, F., & Clark, C. (2003). How to do Action Research in your classrooms. Downloaded 16.4.15 from https://www.naeyc.org/files/naeyc/Action_Research_Booklet.pdf: Teachers Network Leadership Institute (TNLI).
- Schafft, A. (2013). Om å komme seg i arbeid. In R. Norvoll (Ed.), *Samfunn og psykisk helse. Samfunnsvitenskapelige perspektiver* (Vol. 1, pp. 188-212). Oslo: Gyldendal Norsk Forlag AS.
- Seyle, H. (1991). History and present status of the stress concept. In A. Monat & R. S. Lazarus (Eds.), *Stress and coping* (pp. 21-35). New York: Columbia university press.
- Singer, J. E., & Davidson, L. M. (1991). Specificity and Stress Research. In A. Monat & R. S. Lazarus (Eds.), *Stress and Coping* (3 ed., pp. 36-47). New York: Columbia University Press.
- Størksen, I., & Thorsen, A. A. (2011). Barnehagens møte med barn som er utsatt for sosiale belastninger. In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Torsheim, T., Aaroe, L. E., & Wold, B. (2001). Sense of coherence and school-related stress as predictors of subjective health complaints in early adolescence: interactive, indirect or direct relationships? *Social Science & Medicine*, 53, 603-613.
- Turner-Cobb, J. (2014). *Child health psychology. A Biopsychosocial perspective* (Vol. 1). London: SAGE publications Ltd.
- Veland, J. (2011). Klarer skolen å inkludere de sosialt sårbare elevene? In U. V. Midthassel, E. Bru, S. Ertesvåg, & E. Roland (Eds.), *Sosiale og emosjonelle vansker*. Oslo: Universitetsforlaget.
- Whitehead, D. (2006). The health-promoting schools: what role for nursing? *Journal of Clinical Nursing*, 15, 264-271.
- WHO. (1986). The Ottawa charter for health promotion. First international conference on health promotion. Retrieved 21.2.2015, from WHO <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html>
- WHO. (2005). Promoting Mental Health, concepts, emerging evidence, practice. Geneva: WHO Press.
- WHO. (2010). Global Recommendations on Physical Activity for Health. Retrieved 20.4.15 from: http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/: WHO.
- WHO. (2012). What are social determinants of health. Retrieved 20.4.15 from http://www.who.int/social_determinants/sdh_definition/en/

ARTICLE II

How to implement The Children's Orientation scale: A salutogenic approach on health promotion by school nursing services in frames of the action research spiral

WENCHE SIMILÄ

*Department of Social Work and Health Science,
Norwegian University of Science and Technology, NTNU
Corresponding author: wenche.simila@hotmail.com*

ABSTRACT

The main aim of this article is to discuss the possible advantages of using The Children's orientation scale as guidance for health promotion activities among children in school nursing services. The first part of the article introduces the importance of a community focus on children's health, and the importance of a child, school nurse, and family and teacher relationship in health promotion among school children. The salutogenic concept is mentioned as a framework with the potential of creating coherence in and between people and sectors in the construction of an overall "health promoting society". The second part of the article focus on a discussion of a health promoting strategy through school nursing services, with suggestion of The Children's Orientation scale as a preparatory questionnaire for health promoting dialogues. The discussion is based on the core elements of action research.

Key words: Salutogenesis, children, health promotion, school nursing services, action research.

INTRODUCTION

The main aim of this paper is to discuss the possible advantages of using the adjusted SOC questionnaire for children, The Children's Orientation scale (C-SOC) (Appendix 1) as guidance for health promotion activities among children in school nursing services. The elements of action research are considered as an effective research method to implement active health promotion strategies (Whitehead, 2006). It is here used as a framework for the discussion on how to implement a salutogenic approach for school nursing services. The concept of salutogenesis (Antonovsky, 1987) is discussed as a theory including instruments aimed at getting a relevant and comprehensive picture of child health, further, salutogenesis has the potential to direct change in a health promoting direction. This process demands the

development of a child-family-school nurse- relationship (Mäenpää, Paavilainen, & Åstedt-Kurki, 2012), including the cooperation of teachers (Margalit, 1994; The Scottish government, 2012a). Further, C-SOC is used as an instrument to demonstrate how health promotion strategies can be implemented in school settings.

Attachment and belonging to a society

Children have a biological predisposition to promote closeness and contact with parents and other close persons, a crucial element in creating stability in a child's life world (Antonovsky, 1987). Family relationship and the home atmosphere are key factors for the development of children's self-esteem, personality, health and well-being (Mäenpää et al., 2012). In the early years of life, school also becomes an important setting for acquiring basic learning skills and establishing positive and negative interrelations with teachers, peers and society (Idan & Margalit, 2011). Through childhood and adolescence exposure to different and complex external stimuli and demands in different social environments affect the developing sense of coherence of the child, and in some cases hamper development (Antonovsky, 1987). The function of children and adolescents in school partly predicts their overall course quality of life and also serves as an academic and behaviour challenge (Idan & Margalit, 2011).

Important areas for health promoting activities

The WHO Ottawa charter for health promotion (1986) identified schools as a key setting for population and public health (WHO, 1986). Later the European network of Health Promoting Schools (HPS) was established (Whitehead, 2006). Norway joined the network in 1994 (ENHPS, 2009). In 1995 six key component areas were identified in the guidelines for HPS. The components included the physical environment, health policy, the social environment of the school, community relationships (including parents, families and outside agencies), personal health skills and relationship with the health services (Whitehead, 2006). In accordance to this, Scotland developed GIRFEC (Getting it right for every child), a programme where health services and schools cooperate and follow children from birth until they leave high school.

Example of strategy

In the GIRFEC programme each child and family have an appointed named person responsible for observations, mapping, planning of action and follow-up if any concern appears. For this purpose the Government has developed "The National Practice Model" consisting of "The Wellbeing wheel", "My world triangle" and "The resilience matrix". These instruments guide and reveal indicators of child well being. Further, they also serve as a guide for the responsible person's understanding of the world of the child, for discovery of needs and risks, organization and analysing information when necessary, and to guide overall comprehensive plans for action. The named person is also responsible to establish confidence of the child and the parents to dare to make contact and report concerns, and ensure they get help. The view of the child must always be taken seriously, also involving family when necessary. When more than two agencies are involved in the assistance of a child, a leading professional is appointed as a coordinator. The leading professional will thereafter be the main contact for the family, making sure that all parts involved get the information they need, relieving the family from repeating their story several times. The leading professional knows the service practices and helps the child and family understand and participate in the process. The leading professional promotes teamwork between the agencies and makes sure the process goes according to plan (The Scottish government, 2012a).

The state of children's health in Scotland

The UN Report State of the World's Children report the health and wellbeing of children in Scotland as well as the rest of UK relatively low, therefore efforts to improve child health care has been a priority for many years (BMA Board of Science, 2013). The Marmot review underlines the importance of investing in child health at all ages (Marmot et al., 2010). The situation in Scotland demonstrated that children did not get the help they needed, when they needed it, in addition, the agencies involved did not cooperate well (BMA Board of Science, 2013). The GIRFEC programme was developed to override a wide range of policies and strategies (The Scottish government, 2012a). Through the influence of Sir Harry Burns the programme has adopted the salutogenic concept. Sir Harry Burns stated:

Evidence suggests that a sense of control over one's life is associated with better health and better likelihood of adopting healthy behaviour. Undermining that sense of control, it is argued, increases passive acceptance of risk (Burns, 2013, pp. 29-30).

A comparison of the national practice model as related to the salutogenic approach reveals obvious similarities, see Figure 1:

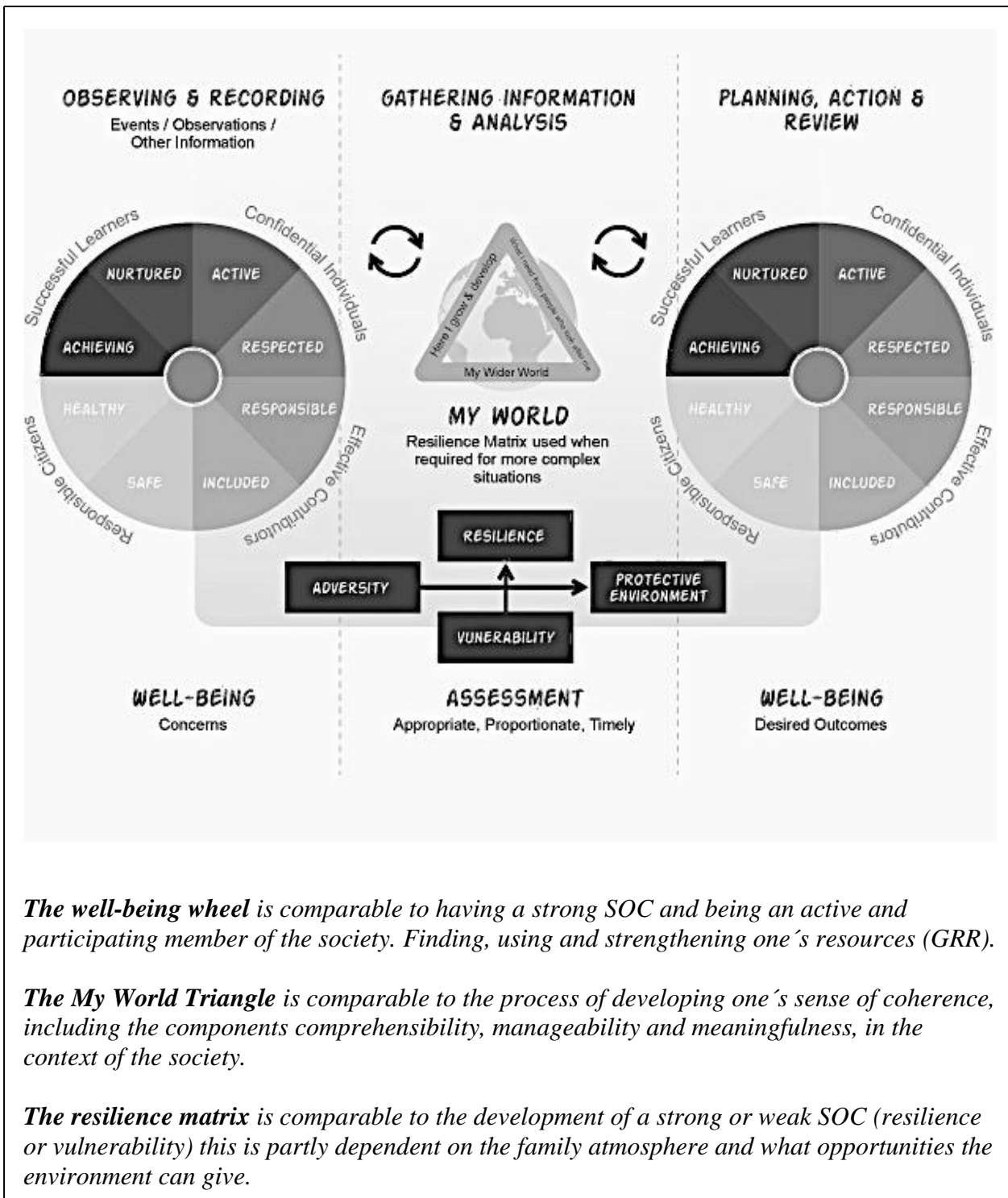


Figure 1. Comparison of the National practice model as related to the salutogenic approach. (The National practice model is moderated after the web site of Getting it right for every child in North- Ayrshire, <http://www.girfecna.co.uk> (The Scottish government, 2012b)).

The state of children's health in Norway

Although Norwegian children and adolescents are among the healthiest in the world, 30 % still face chronic disease or ailments, 15-20 % between the age of 3 and 18 struggle with impaired function due to mental disorders (St. Meld. 34, 2012-2013). Although Norway joined the ENHPS more than ten years ago the health promoting activities of school nurses still are deficient and unclear (Whitehead, 2006). On basis of subjective health complaints like headache, backache and abdominal pain, common in early adolescence, evidence from the WHO health behaviour in school age children study (HBSC) reported a direct relationship between subjective health complaints and SOC, and moderate to strong inverse relations between school-related stress and SOC (Torsheim, Aaroe, & Wold, 2001).

Neglecting health promotion in schools today is pushing a growing number of young people into child protection and rehabilitation services. The lack of school nurses (about the only profession designated for school health promotion) leaves many school children without health promotion activities (Espnes & Smedslund, 2009). The inability to man 1500 positions for school nursing services in Norway, disables the possibility to meet the recommended norms set by the Norwegian Health Directorate (Barneombudet, 2013). School nursing services are only able to provide the most basic services like vaccinations, screening, information and send referrals (Whitehead, 2006). Children in need of contact during school day, often knocks on an empty door (Barneombudet, 2013). There is also lack of training of the professionals, further the evidence base and evaluation of health programmes is insufficient (Whitehead, 2006). A recent Norwegian National public health report stated "...children and adolescents conditions must be safeguarded through strengthening of parents competences, ...development and strengthening of schools and school health services" (St. Meld. 34, 2012-2013, p. 18). Regarding this, the UN Convention on the Rights of the Child (1989) has been ratified by Norway. The Convention is a legally binding document in Norway. Here is stated "... ensure the child is given such protection and care as is necessary for his or her wellbeing, taking into account the rights and duties of parents, legal guardians or other individuals legally responsible... and to ... secure that institutions and services responsible for children's care or protection abides by standards set by competent authorities especially in consideration of security, health, available personnel and competences..." (UN, 1989, Article 3). The Parliamentary agreement, St. Meld. 34 (2013-2013) state it is "...a need to develop methods, instruments and adequate routine systems to ensure a systematic and consistent development of rigorous public audit within all sectors" (p. 153). Every child

deserves that the state they live in respect, protect and fulfil their rights to develop and be healthy (Mercer, Hertzman, Molina & Vaghri, 2013, p. 106)

Global recommendations and the fit of a salutogenic approach

The Ottawa Charter definition of health promotion states: “Health promotion is the process of enabling people to increase control over, and to improve, their health” (WHO, 1986). In this process people are seen as active participating subjects throughout the life course also enabled to utilise their resources for health (Lindström & Eriksson, 2011). The concept of salutogenesis is a broad concept “...focusing on resources, competencies, abilities, assets on different levels such as the individual, group (i.e. families), and in society” (Lindström & Eriksson, 2010, p. 55). The salutogenic framework has the potential of creating coherence in and between people and sectors, eventually constructing an overall “health promoting society”. In such a society “...it is important to strengthen existing GRR, create new ones and make people aware of such resources and also able to use them” (Eriksson & Lindström, 2007, p. 942).

Method for implementation

Action research is considered to be a very effective research method when desired active health promotion strategies are to be effectuated (Whitehead, 2006). Antonovsky’s health ease-/dis-ease continuum and the SOC/C-SOC scales thus can serve, as instruments to make people understand and be aware of what changes are needed to improve health. Today salutogenesis is not only based on one theory, it includes several concepts and theories that metaphorically can be described as “a salutogenic umbrella”. Together they create a salutogenic framework for health promotion (Lindström & Eriksson, 2010). Here two such concepts, empowerment and resilience, are given as examples: “Empowerment is the process that facilitates individuals` identification of their own needs, and their use of existing personal competencies in trying to meet these needs” (Margalit, 1998, p. 179), while resilience again is related to the ability to cope with adversities. It is defined as “...a class of phenomena characterized by patterns of positive adaption in context of significant adversity or risk” (Masten & Reed, 2005, p. 75).

DISCUSSION

How can school nursing services enable children to increase control over and improve their health, to become fit to meet the challenges of the future? Firstly, a conscious, sustained and collaborative commitment from the whole school community is required (Whitehead, 2006). This discussion presents salutogenesis and action research as models for the development of a cooperative relationship between school nurses, teachers, parents and children, overall aiming at the creation of a healthy learning process for the child. Secondly in order to create a conscious change of SOC, one has to consider the four essential GRRs proposed by Antonovsky: the inner feelings, the immediate interpersonal relations, the major daily activities and the existential issues. Finally the institutional, social and cultural frameworks have to be connected to the possibility of change. It is not enough to talk about problematic issues – there is a need for action! (Antonovsky, 1987).

As previously mentioned, the headings on each of the following texts are based on the core elements of action research.

Issue identification

The presence of widespread psychosocial problems among children and adolescents, such as unhappiness, loneliness, neglect and maltreatment can be prerequisites for sadness, behaviour problems, school problems, eating disorders, abuse of narcotics and criminality (Helsedepartementet, 2003). Boys struggle with behaviour problems while girls struggle with anxiety, depressions and psychosomatic problems (Dalgård, 1996; Moksnes, Moldjord, Espnes, & Byrne, 2010). A high prevalence of negative events is strongly associated to behavioural problems and psychological symptoms in young people (Kanner, Feldman, Weinberger, & Ford, 1991). School health services in Norway today are inadequate and unable to meet the needs of the children regarding general and special psychological support, addressing violence, abuse and traumatic experiences especially of refugee children (Barneombudet, 2013). There is also an increasing concern regarding school dropouts that may have multifactor causes in early childhood. Therefore early interventions in the educational process must be given priority (NOVA, 2010). It is of utmost importance for public health nurses to understand how crucial it is to create a good basis for wellbeing in early in childhood. This will have a positive impact on adult life. If not earlier, health promotion and intervention programmes should be developed in school age, focusing on

strengthening psychosocial wellbeing (Haraldstad, Christophersen, Eide, Natvig, & Helseth, 2011).

Summarize previous experiences

Children have a right to be heard (Barneombudet, 2013; UN, 1989), and the school health services are supposed to reach all children and adolescents (Barne-/likestillings- og inkluderingsdepartementet, 2014). Health promoting models integrated into the school curriculum will create coordinated processes leading to healthy learning, constructive lifestyle and participatory working methods (Whitehead, 2006; Erikson, 1968).

Formulating goals

The outcome of excellent school health services is a reduction of overall health complaints (Svebak, Jensen, & Göttestam, 2008). “Preventive programs that empower the ability of children to integrate their thinking and learning skills to their abilities to regulate their feelings (emotion regulation) and actions (behavioural competence), promote growth, effort and motivation” (Idan & Margalit, 2011, p. 14). It is recommended that competences in areas of general and special psychological support is given priority in school health nursing (Barneombudet, 2013). Here a good interaction between nurses, parents and teachers leads to the reduction of conflicting stimuli and demands (Antonovsky, 1987). SOC correlates with good health (Eriksson & Lindsström, 2006), further, a strong SOC provides a good platform for learning (Antonovsky, 1996). Therefore goals on how to strengthen SOC should be developed, linking WHO’s definition of health (WHO, 2009) to SOC, i.e.

...a pervasive, enduring though dynamic feeling of confidence that the stimuli from one’s internal and external environments in the course of living are structured, predictable, and explicable (comprehensibility); the resources are available to one to meet the demands posed by the stimuli (manageability); and these demands are challenges, worthy of investment and engagement (meaningfulness) (Antonovsky, 1987, p. 19).

Goals for academic and behavioural challenges, development of satisfactory relations, enjoyment of success and competencies will cover for a multidimensional approach.

Plan and develop action

Increased school nursing and competence development must be given priority in community health services, according to the five main pillars of the Ottawa charter (Helsedirektoratet, 2010). The development of a child, family, teacher and school nurse relationship is important to get a real and comprehensive picture of the child's health (Mäenpää et al., 2012). The developing sense of coherence is a personal resource, and stresses and difficulties in children, call for early awareness and empowering programs to improve development. Early interventions will have a positive impact on future academic performance, the development of friendship and an increasing strength of the sense of coherence (Idan & Margalit, 2011). Through preparatory questionnaires school nurses are able to see under what conditions the children live and act. Thereafter be able to guide the children and let them reflect on their personal health and coping strategies (Golsäter, Sidenvall, Lingfors, & Enskär, 2011). For children aged 5-10 C-SOC scale is suggested to be an appropriate preparatory questionnaire for health promoting dialogues (Krause, 2011; Margalit, Mioduser, Al-Yagon, & Neuberger, 1997). The salutogenic dialogue is a specific communication approach aiming at the identification and mobilisation of personal health resources (Malterud & Hollnagel, 1998). It is an appropriate technique to help children reflect on their own health and coping (Golsäter et al., 2011). In the dialogues it is important to emphasize manageability to facilitate a constructive narrative identity, and to create meaning and coherence by story telling reflecting on one's personal experiences (Langeland, 2014; Løhre, 2012).

The recommended empowerment-interventions are: To promote a strong individual sense of coherence and ability to develop meaningful interpersonal connections, and to create interesting action areas in order to avoid exclusion and loneliness (Margalit, 1998). By emphasizing comprehensibility (explaining and clarifying goals and procedures), manageability (teaching the required skills to reach the goals) and meaningfulness (enhancing motivation and involvement in the effort), the salutogenic paradigm provides a structure to plan multidimensional activities for promotion, prevention and intervention approach. This has proved to be valuable for normal child development as well as for children with special educational needs, such as behaviour challenges and learning disabilities (Idan & Margalit, 2011). The empowering approach in a salutogenic orientation is to attempt to identify factors that promote action and create experiences that promote the competence and sense of mastering of the child, thus directing the individual towards the healthy end of the ease-/disease continuum; such as fostering socialization and counteracting loneliness (Margalit, 1998).

The use of the ease-/dis-ease continuum reveals what the need of change is regarding coping styles and to move towards a desired position in the continuum. It is important to identify and make use of the salutogenic GRRs and find what resources are available, upon these one can create new resources that can strengthen SOC (Eriksson & Lindsström, 2006). Empowering approaches viewing social skills, like the experience of loneliness, as pieces of the puzzle of social competence, intend to activate the individual's search for personal answers to social needs. This may affect the individual sense of coherence enhancing growth through the development of meaningful social connections finding personal interests in one's personal activities (Margalit & Efrati, 2006).

A salutogenic orientation combined with the exploration of provided friendship, empower children to reflect and find resources that create change (Margalit & Efrati, 2006). The most intimate social relationships initiating the process of support should normally be family and friends. Further, family relationships and the home atmosphere are important for the development of self-esteem, personality, health and wellbeing of the child (Mäenpää et al., 2012). Cohesion is a dimension of emotional bonding between family members (Sharabi, Levi, & Margalit, 2012). A strong sense of coherence is related to a cohesive and supportive family structure, this again, provides important implications for intervention and prevention efforts (Idan & Margalit, 2011). Factors that predict the impact of loneliness of a child as a developmental risk factor are insufficient family cohesion and lack of hope. Low levels of both factors predict a weak sense of coherence. Hope, though, is not significantly related to family dimensions but serves as a factor able to empower children and promote personal strength through the development of perceptions of future opportunities. Hope is essential in relation to coping style, academic achievement, athletic performance and sense of coherence (Sharabi et al., 2012). The construct of hope comprises of both pathway thinking and agency thinking. According to Snyder (2003) hope is a cognitive set with two appraisal processes occurring simultaneously, in order to obtain an overall sense of a child's hope. The appraisal of being capable of executing the means to obtain desired goals (agency thinking), and the appraisal of being capable of generating those means (pathway thinking) (Snyder, 2003).

Salutogenic models encompass both strength and capacity of the individual to move towards a successful adjustment, in spite of persistent academic difficulties (Margalit & Efrati, 2006). There is a dynamic interaction between academic and socio-emotional factors that prepare the children to deal with difficulties as challenges worthy of effort investment. The development

of comprehensive educational intervention programmes have to consider a resilience approach, with the sense of coherence and hope as predictors to explain wellbeing and adjustment. Helping children to develop hopeful thinking also give the teacher an option to see the child in a broader perspective (Idan & Margalit, 2011). “Acquiring a wide range of coping strategies, alongside an emphasis on collaborative activities, developing partnership that respect different voices and self-reliance embedded in the learning of hopeful thinking and positive expectations for future goals; all of this may enhance the youngsters resilience and motivation to invest efforts in order to reach their preferred goals” (Idan & Margalit, 2011, p. 13).

Describing action (procedure)

The cooperative relationship between the child, the school nurse, the family and the teacher creates a real vision of the health of the child. The school nurse guides the child towards becoming an active participant together with reflecting on what causes health and what resources strengthen the sense of coherence. This is made instrumental through salutogenic dialogues, and use of the health ease/dis-ease continuum and the GRR instrument. Coping strategies are for instance: to actively search for social contacts and friends, to create active personal activities and to ask peers for help to develop new relationships (Margalit, 1994). Agents of change are the nurse, family, teachers and peers. How teacher’s enforce and praise desired social behaviours would have an important effect on the interaction between children. Peer-mediated interventions through role play training on how to initiate and maintain interactions, how to respond to refusals and how to interact when confronted with negative behaviour is helpful (Margalit, 1994). The salutogenic approach can be compared to cognitive strategies described by Cox (1991); i.e. prepare for competition, development of metaphoric skills, goal-settings skills: planning of long term and short term goals as small steps on the way, to be realistic in the selection of goals, also specific behavioural goals that can be measured and outline a specific strategy or plan for meeting the goal. This requires monitoring and evaluation (Cox, 1991), similar to action research (Malterud, 2011). The foundation for this research approach stems from Edwin Locke (Locke & Latham, 2002). There are available psychological skills-education programmes for the improvement of skills that could be used in schools (Cox, 1991), i.e. mindfulness, which has shown impacts on mental and physical health, social and emotional competences, and performance of various kind (Kuyken et al., 2013; Weare, 2014).

To implement actions

Action research should be implemented as a longitudinal study at different ages in schools to document changes and stability in the development of sense of coherence. A coordinated international longitudinal study could explore the interactions of the sense of coherence between cultures, schools and different growth paths in children (Idan & Margalit, 2011).

CONCLUSION

Metaphorically the aim of the salutogenic model is to “look for what keeps the swimmer going in a healthy direction, and to make swimmers think of how to find support in difficult situations”. This would promote health and prevent us from getting pushed down stream. The most important thing to find out in difficult situations is what is pushing us into the stream, and to find and mobilise resources to get back and swim firmly in the right direction. While looking for the reason(s) we get pushed into the stream, we have to use our own resources and supportive resources to build health. Learning this in the early years of life will develop a stronger base for a successful life course to meet the challenges to come (Antonovsky, 1996). High reflective functioning in parenthood able to separate own feelings and needs from the child’s, and it is important to see the child always as a unique person. Reflective parenthood is especially important for the capacity to create safe relations with own children, when suffering from own difficult experiences. Through interventions it is possible to influence the reflective functioning of parents (Kalland, 2012). School nurse’s and teacher’s competence and capacity to meet children when they invite to talk about difficult issues, and to be agents of change when necessary, must be a priority in the community (Helsedirektoratet, 2010). The school setting is important for the child’s development and the environment must be prepared to support and care for children in need of attachment-like figures that can serve as a secure base when exploring and learning new skills (Al-Yagon & Margalit, 2007). The C-SOC scale (Appendix 1) has the potential to serve as a preparatory questionnaire for health promoting dialogues in the framework and implementation of a salutogenic approach to health promotion in schools.

Every disaster has its affective epicentre from which waves of uncontrollable feeling flow, inundating even those who work peripherally” (Anthony, 1991, p. 317)

References

- Al-Yagon, M., & Margalit, M. (2007). Loneliness, sense of coherence and perception of teachers as a secure base among children with reading difficulties. *European Journal of Special Needs Education, 21*(1), 21-37. doi: 10-1080/08856250500268619
- Anthony, E. J. (1991). The response to overwhelming stress in children: Some introductory comments. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 307-318). New York: Columbia University Press.
- Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well* (1 ed.). San Francisco: Jossey-Bass Inc. Publishers.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International, 11*(1).
- Barne / likestillings og inkluderingsdepartementet (2014). Satsing på barn og ungdom. Regjeringens mål og innsatsområder i statsbudsjettet 2014. Retrieved 22.2.15 from: [http://www.regjeringen.no/upload/BLD/Barn og Ungdom/Satsing p% C3%A5 barn og ungdom/Satsing_barn_og_ungdom_2014.pdf](http://www.regjeringen.no/upload/BLD/Barn%20og%20Ungdom/Satsing%20p%C3%A5%20barn%20og%20ungdom/Satsing_barn_og_ungdom_2014.pdf)
- Barneombudet. (2013). Barneombudets fagrapport. Helse på barns premisser. Retrieved 13.8.14 from: <http://www.barneombudet.no>.
- BMA Board of Science. (2013). Growing up in the UK - Ensuring a healthy future for children. In G. Foyle & P. V. Nathanson (Eds.). London.
- Burns, S. H. (2013). Assets for health. (978-0-9572533-2-2(pbk.)). Retrieved 20.3.15, from Governance International http://www.coproductionsotland.org.uk/files/8213/6189/6682/Coproduction_of_Health_and_Wellbeing_in_Scotland_2013.pdf - page=28
- Cox, R. H. (1991). Intervention strategies. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 432-474). New York: Columbia University Press.
- Dalgård, O. S. (1996). The epidemiology of mental health disorders in Norway. *Norwegian Journal of Psychology, 50*(36), 39-44.
- ENHPS. (2009). The European Network of Health Promoting Schools, the alliance of education and health. (Copenhagen, Trans.). Retrieved 15.9.14 from: <http://pgsaudemental.files.wordpress.com/2009/04/reeps.pdf>
- Erikson, E. H. (1968). *Identity. Youth and Crisis*. Chp 4. London: Faber & Faber.
- Eriksson, M., & Lindsström, B. (2006). Antonovsky's sense of coherence scale and relation with health: a systematic review. *Journal of Epidemiology and Community Health, 60*, 376-381. doi: 10.1136/jech.2005.041616
- Eriksson, M., & Lindström, B. (2007). Antonovsky's sense of coherence scale and its relation with quality of life: a systematic review. *Journal of Epidemiology and Community Health, 61*, 938-944. doi: 10.1136/jech.2006.056028
- Espnes, G. A., & Smedslund, G. (2009). *Helsepsykologi*. Oslo: Gyldendal Norsk Forlag AS.
- Golsäter, M., Sidenvall, B., Lingfors, H., & Enskär, K. (2011). Adolescents' and school nurses' perception of using a health and lifestyle tool in health dialogues. *Journal of Clinical Nursing, 20*, 2573-2583.
- Haraldstad, K., Christophersen, K.-A., Eide, H., Natvig, G. K., & Helseth, S. (2011). Predictors of health-related quality of life in a sample of children and adolescents: a school survey. *Journal of Clinical Nursing, 20*, 3048-3056. doi: 10.1111/j.1365-2702.2010.0393.x
- Helsedepartementet, i. s. m. Barne- og familiedepartementet, Justisdepartementet, Kommunal- og Regionaldepartementet, Kultur- og Kirkedepartementet, Sosialdepartementet, Utdannings- og Forskningsdepartementet (2003). Regjeringens strategiplan for barn og unges psykiske helse. Retrieved 25.10.14

- from:http://www.regjeringen.no/upload/HOD/Vedlegg/strategiplan_f_or_barn_og_unges_psykiske_helse.pdf.
- Helsedirektoratet. (2010). Helsefremmende arbeid. Retrieved 26.9.14, 2014, from fra:<http://www.forebygging.no/Ordbok/F-K/Helsefremmende-arbeid/>
- Idan, O., & Margalit, M. (2011). The salutogenic orientation: Childrens sense of coherence and hopeful thinking in education of children and adolescents. *Teachings education periodical*, 4, 4-17.
- Kalland, M. (2012). The importance of social support and reflective functioning for parenthood. In M. Kekkonen, M. Montonen, & R. Viitala (Eds.), *Family Centre in the Nordic Countries - a meeting point for children and families* (pp. 48-55). Copenhagen: Nordic Council of Ministers.
- Kanner, A. D., Feldman, S. S., Weinberger, D. A., & Ford, M. E. (1991). Uplifts, hassles, and adaptional outcomes in early adolescent. In R. S. Lazarus & A. Monat (Eds.), *Stress and coping* (3 ed., pp. 158-181). New York: Columbia University Press.
- Krause, C. (2011). Developing sense of coherence in educational context: Making progress in promoting mental health in children. *International Review of Psychiatry*, 23(6), 525-532. doi: 10.3109/09540261.2011.637907
- Kröniger-Jungaberle, H. & Grevenstein, D (2013). Development of salutogenic factors in mental health: Antonovsky's sense of coherence and Bandura's self-efficacy related to Derogatis' symptom checklist (SCL-90-R). *Health and Quality of Life outcomes* 11(80).pp.9-14. doi: 10.1186/1477-7525-11-80.
- Kuyken, W., Weare, K., Ukoumunne, O. C., Vicary, R., Motton, N., Burnett, R., . . . Huppert, F. (2013). Effectiveness of the Mindfulness in Schools Programme: non-randomized controlled feasibility study. *British Journal of Psychology*, 1-6. doi: 10.1192/bjp.bp.113.126649
- Langeland, E. (2013). Promoting sense of coherence: Salutogenesis among people with psoriasis undergoing patient education in climate therapy. *BMC Psychology* 1 (11). doi: 10.1186/2050-7283-1-11.
- Langeland, E. (2014). Salutogenese og psykiske helseproblemer – en kunnskapsoppsummering. *Nasjonalt kompetansesenter for psykisk helsearbeid (NAPHA). Rapport nr 1/2014*. (pp. 11-20). Oslo.
- Lindström, B., & Eriksson, M. (2010). *Hitchhikers guide to salutogenesis* (4 Ed.). Helsinki: Folkhälsan Research Centre, Health Promotion Research and the IUPHE Global Working Group on Salutogenesis (GWG-SAL).
- Lindström, B., & Eriksson, M. (2011). From education to healthy learning: Implementing salutogenesis in educational science. *Scandinavian Journal of Public Health*, 39(89), 85-92. doi: 10.1177/140349810393560
- Locke, E., & Latham, G. P. (2002). Building a Practically Useful Theory of Goal Settings and Task Motivation: A 35 year Odyssey. *American Psychologist*, 57(9), 705-717.
- Løhre, A. (2012) School wellbeing among children: The dialogue and possibilities. I: S.T. Innstrand (2012). *Health Promotion - theory and practice*. Del IV, kap. 17. Research Centre for Health Promotion and Resources HIST/NTNU. Trondheim: NTNU-trykk
- Malterud, K. (2011). *Kvalitative metoder i medisinsk forskning*. Oslo: Universitetsforlaget.
- Malterud, K., & Hollnagel, H. (1998). Talking with woman about personal health resources in general practice. *Scandinavian Journal of Primary Health Care*, 16, 66-71.
- Margalit, M. (1994). *Loneliness among children with special needs: Theory, research, coping and intervention* (1 ed.). New York: Springer-Verlag.
- Margalit, M. (1998). Loneliness and coherence among preschool children with learning disabilities. *Journal of learning disabilities*, 31(2), 173-180.

- Margalit, M., & Efrati, M. (2006). Loneliness, coherence and companionship among children with learning disorders. *Educational psychology, 16*(1), 69-79. doi: 10.1080/0144341960160106
- Margalit, M., Mioduser, D., Al-Yagon, M., & Neuberger, S. (1997). Teachers' and peers' perception of children with learning disorders: consistency and change. *European Journal of Special Needs Education, 12*(3), 225-238.
- Marmot, M., Atkinson, T., Bell, J., Black, C., Broadfoot, P., Cumberlege, J., . . . Mulgan, G. (2010). Fair Society, Healthy Lives. The Marmot review. Strategic review of health inequalities in England.
- Masten, A. S., & Reed, M.-G. J. (2005). Resilience in Development. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of Positive psychology* (pp. 74-88): Oxford University Press.
- Mercer, R., Hertzman, C., Molina, H., & Vaghri, Z. (2013). Promoting equity from the start through early child development and Health in All Policies (ECD-HiAP). In k. Leppo, E. Ollila, S. Peña, M. Wismar, & S. Cook. *Health in All Policies*. Finland: Ministry of Social Affairs and Health
- Moksnes, U. K., Moldjord, I. E. O., Espnes, G. A., & Byrne, D. G. (2010). Leisure time physical activity does not moderate the relationship between psychological functioning in Norwegian adolescents. *Journal of Mental health and physical activity, 3*, 17-22
- Mäenpää, T., Paavilainen, E., & Åstedt-Kurki, P. (2012). Family-school nurse partnership in primary school health care. *Scandinavian Journals of Caring Sciences, 27*(1), 195-202. doi: 10.1111/j.1471_6712.2012.01014.x.
- NOVA. (2010). Språk, stimulans og læringslyst - tidlig innsats og tiltak mot frafall i videregående opplæring gjennom hele oppveksten. En kunnskapsoversikt. In S. Wollscheid (Ed.), (Vol. 12). Oslo Retrieved 30.3.15 from: <http://www.hioa.no/Om-HiOA/Senter-for-velferds-og-arbeidslivsforskning/NOVA/Publikasjoner/Rapporter/2010/Spraak-stimulans-og-laeringslyst-tidlig-innsats-og-tiltak-mot-frafall-i-videregaaende-opplaering-gjennom-hele-oppveksten>: Norsk institutt for forskning om oppvekst, velferd og aldring.
- Sharabi, A., Levi, U., & Margalit, M. (2012). Children's loneliness, sense of coherence, family climate, and hope: Developmental risk and protective factors. *The journal of psychology, 146*(1-2), 61-83.
- Snyder, C. R. (2003). *Measuring Hope in Children*. Paper presented at the For Indicators of Positive Development Conference, Washington, DC. Retrieved 15.4.15 from: http://www.childtrends.org/wp-content/uploads/2013/05/Child_Trends-2003_03_12_PD_PDConfSnyder.pdf
- St. Meld. 34. (2012-2013). Folkehelsemeldingen. God helse-felles ansvar. Retrieved 20.10.13 from: <https://www.regjeringen.no/contentassets/7fe0d990020b4e0fb61f35e1e05c84fe/no/pdfs/stm201420150019000dddpdfs.pdf>
<https://www.regjeringen.no/nb/dokumentarkiv/stoltenberg-ii/hod/tema-og-redaksjonelt-innhold/redaksjonelle-artikler/2013/folkehelsemeldingen-god-helse---felles-a/id724323/>: Det Kongelige helse- og omsorgsdepartement.
- Svebak, S., Jensen, E. N., & Gøtestam, G. (2008). Some health effects of implementing school nursing in a Norwegian high school: A controlled study. *The journal of school nursing, 24*(1), 49-54.

- The Scottish government. (2012a). Getting it right for Children & Families. A guide to getting it right for every child. . Retrieved 3.10.14 from:
<http://www.scotland.gov.uk/Resource/0045/00458341.pdf>.
- The Scottish government. (2012b). The National practice model. Retrieved 15.4.15, from
<http://www.girfecna.co.uk>
- Torsheim, T., Aaroe, L. E., & Wold, B. (2001). Sense of coherence and school-related stress as predictors of subjective health complaints in early adolescence: interactive, indirect or direct relationships? *Social Science & Medicine*, 53, 603-613.
- UN. (1989). Convention on the Rights of the Child of november 20th, 1989 (pp. Article 3). Retrieved 20.3.15 from:
<http://www.ohchr.org/en/professionalinterest/pages/crc.aspx>
<http://www.fn.no/Bibliotek/Avtaler/Menneskerettigheter/FNs-konvensjon-om-barnets-rettigheter-Barnekonvensjonen>.
- Weare, K. (2014). Evidence for Mindfulness: Impacts on the Wellbeing and Performance of School Staff *Mindfulness in Schools Project*. Retrieved 20.4.15 from:
<http://mindfulnessinschools.org/wp-content/uploads/2014/10/Evidence-for-Mindfulness-Impact-on-school-staff.pdf>: Universities of Exeter and Southampton.
- Whitehead, D. (2006). The health-promoting schools: what role for nursing? *Journal of Clinical Nursing*, 15, 264-271.
- WHO (1986). The Ottawa charter for health promotion. First international conference on health promotion. Retrieved 21.2.2015, from WHO
<http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html>
- WHO (2009). Milestones in health promotion. Statements from Global conferences. Geneva: WHO

ARTICLE III

Validation of The Children's Orientation Scale (C-SOC) in a Norwegian sample

WENCHE SIMILÄ

*Department of Social Work and Health Science,
Norwegian University of Science and Technology, NTNU
Corresponding author: wenche.simila@hotmail.com*

ABSTRACT

Objectives: National Norwegian Government reports repeatedly ask for the development of methods, instruments and good routines for a systematic and consistent use of audit measures in all sectors. The school nursing services in Norway is urgently in need of improvement, demanding not only more school nurses but improved competence. The salutogenic approach offers new instruments for health promotion such as The Children's Orientation scale (C-SOC) not previously available in Norwegian. **Design/Methods:** In this study the C-SOC scale was translated into Norwegian, and tested in a Norwegian sample. Principal component analyses and confirmatory factor analyses were used to test the factor structure of the scale, purposely to find if the one-factor structure Antonovsky suggested was confirmed. Reliability analysis was conducted with Cronbach's alpha. Additional analysis, t-Test and One-way ANOVA, were used to test differences in age and gender. **Settings:** The data was collected in conference rooms and in classrooms at the participating children's schools. **Participants:** 157 children from elementary schools in Trondheim, aged 8-10 participated in the study. **Results:** A higher order three-dimension factor structure gave the best fit for a model. Factor loadings were low, but with recommended amounts of loadings within cut off values. Factor loadings for one item and for one dimension were extremely high, and for one dimension low. Correlations for the three dimensions were moderate to weak, and with low reliability. Additional analysis demonstrated some differences in relation to age and gender. The study recommends further use of the C-SOC scale in future Norwegian studies.

Key words: Children's Orientation scale, exploratory and confirmatory factor analyses, psychometric properties, children's sense of coherence, health promotion.

INTRODUCTION

Health promotion is of central importance in today's society (Kickbush, 2003). Here the focus is on studies of factors that create and support human health and identify capacities and resources with a positive impact on health. In the context of health promotion, the concept of salutogenesis has become both a theory and an approach that constitutes one of the most coherent approaches to the actual creation of health and wellbeing, also having a firm evidence base (Burns, 2013). Today investment in health in all age spans of childhood is strongly recommended as a basis for improving equity (Marmot et al., 2010). Some National health promoting school programmes have already adopted the salutogenic framework (The Scottish government, 2012).

Belonging to a community

Research and policy today suggest the use of methods and models for a life course and socio-ecological approach in order to identify key drivers and processes that regulate human behaviour in interaction with the environment (Ohl & Swinton, 2010; Redman, Grove, & Kuby, 2004). To improve the process and health outcome of children, parents and community, it is important to understand the living context of children i.e. under what conditions they lead their life. It is also important to understand how attachment develops between children, parents and the environment. Further, to facilitate the process where children can master their own lives also being able to influence the key elements themselves (Loeffler, 2013). To facilitate a positive development of attachment in schools it is important to establish a system of attachment persons who can provide care and support in the process of children exploring and attaining new skills (Al-Yagon & Margalit, 2007). Establishing a positive attachment in the early years of life has a huge impact on the child's future health and wellbeing, and is of importance when it comes to having lasting relationships throughout life (Turner-Cobb, 2014).

Increasing concerns, and the state of school nursing services

There is an increasing concern related to student's failure to complete school in Norway. This has turned the focus to early interventions in the education process (NOVA, 2010). The school nurse is about the only profession especially trained for health promotion in Norwegian schools (Espnes & Smedslund, 2009), unfortunately there is gap in the provision of resources making it impossible for the services to achieve the objectives set by the National Health Directorate (Barneombudet, 2013).

National Public Health goals and proposed instruments

The prerequisites for achieving the public health goals is presented in a recent Norwegian public health report (2012-2013), stating there is "...a need to develop methods, instruments and adequate routine systems to ensure a systematic and consistent development of rigorous public audit within all sectors" (St. Meld. 34, 2012-2013, p. 153). The Orientation to Life scale (SOC-29/13) (Antonovsky, 1987) could serve such a purpose regarding health promotion since it addresses all the five action areas of WHO's Ottawa charter on Health Promotion simultaneously and also generate better health (WHO, 1986, Lindström & Eriksson, 2010).

Reliable and validated measures

The SOC scale measure the position of an individual or a system on Antonovsky's health ease/dis-ease continuum, exposing what the needs of effort are to strengthen the GRRs and in extension the SOC (Antonovsky, 1987). The SOC scale has already been proved to be a reliable and valid instrument for health promotion, used for both adult populations (Malterud & Hollnagel, 1998) and adolescents (Bronikowski & Bronikowska, 2009; Moksnes & Haugan, 2013). One qualitative Norwegian study used the SOC-13 scale in face to face interviews with 8 and 9 years old children using an adjusted scale appropriate for the age group (Løndal, 2010). The SOC scale has previously been adapted for children through The Children's Orientation scale (C-SOC) (Idan & Margalit, 2011). The instrument has the potential to serve as a preparatory questionnaire for health promoting dialogues between school nurses and children (Krause, 2011; Malterud & Hollnagel, 1998; Margalit, Mioduser, Al-Yagon, & Neuberger, 1997). The reason why the measurement of SOC should be given priority in the school context is that it is possible to find the children who have a weak SOC and therefore are in need of a substantial effort from the school services to improve the situation. This is important, because SOC and the general resistance resources (GRRs) serve as a resource for health. This study is the first to consider the application of the C-SOC scale in a Norwegian sample.

The aim of the study

The aim of this study was to assess the structure and psychometric properties of the C-SOC scale, a new instrument for the Norwegian child population. Further, to translate and adapt the existing C-SOC scale (Appendix 1) as a standard for Norwegian children aged 5-10. In addition, the study also aimed at assessing the levels of SOC in a sample of Norwegian children including the exploration of the dimensionality of the scale through principal component and confirmatory factor analysis. The study tested if the one-factor structure as suggested by Antonovsky could be confirmed for the C-SOC scale.

Previous findings of model fit in the SOC scale

The construct validity of the SOC scale is not completely clear. According to Antonovsky (1993) one global factor would be the best (Antonovsky, 1993). There are both one, and three factor solutions tried out based on the three SOC dimensions; comprehensibility, manageability and meaningfulness. Previously a correlated three-factor model proved to have

an excellent fit in a Norwegian population, where correlated error term between two items sharing residual variance was allowed (Moksnes & Haugan, 2013). However, a factor analysis has not always been able to extract the three components, while the one factor solution is confirmed by some factor analyses and others have failed to confirm it (Lindström & Eriksson, 2005). A French study earlier examined four different factor structure models; a one factor solution (M1), an uncorrelated three dimension solution (M2) and a correlated three dimension solution (M3), and a higher order factor structure model (M4), demonstrating that neither M1 nor M2 adequately reflected the factor structure of the SOC-29/-13 scales. However, it seemed the SOC-29/-13 could be adequately described through a modified version of M3 - the three correlated factor structure (RMSEA=0.05/0.04), and through a modified version of M4 - the higher order model (RMSEA=0.05/0.04), with some doubts about how “clean” M4 was (Gana & Garnier, 2000). Factor analysis of SOC-13 in an ageing population resulted in 2 items removed from the scale, because the content of the items did not fit an ageing population with different expectation for the future compared to younger populations. The model fit of a correlated three factor solution of a SOC-11 scale (RMSEA=0.055) in confirmatory factor analysis was better than the SOC-13 scale (Naaldenberg, Tovi, Esker, & Vaandrager, 2011).

The sense of coherence and the SOC and C-SOC scales

A persons sense of coherence (SOC) can be seen as a developing personal resource (Idan & Margalit, 2011). The measurements; the SOC-29/-13 and the C-SOC scales; reflect the sense of comprehensibility, manageability, and meaningfulness in people’s life world (Antonovsky, 1987). A strong SOC correlates with good health (Eriksson & Lindsström, 2006), and the strength of SOC is influenced by the availability and use of general resistance resources (GRRs) (Antonovsky, 1979, 1987). The measurement of SOC (SOC-29) (Antonovsky, 1987) was adjusted for children into the C-SOC scale by Malka Margalit in 1995 (Appendix 1) (Idan & Margalit, 2011, Margalit, 1998). The C-SOC scale is a questionnaire with 19 items (16 adjusted from SOC-29), developed for children aged 5 to 10 years that can be completed by children themselves assisted by i.e. researchers or school nurses. The C-SOC scale was originally developed in Hebrew, and translated into English for use in other countries (Appendix 1). In this study the English version was translated into Norwegian (Appendix 2), and tested in a Norwegian sample, also exploring the factor structure of the instrument. The C-SOC scale has the potential to be used as a preparatory questionnaire for health promoting

dialogues guided by school nurses (Golsäter, Sidenvall, Lingfors, & Enskär, 2011; Malterud & Hollnagel, 1998), ultimately aiming at supporting children in their own reflection, planning and evaluation of health promoting activities (Bronikowski & Bronikowska, 2009; Hellison, 2011; Malterud & Hollnagel, 1998). School nurses in cooperation with teachers, parents and peers can act as agents of change (Margalit, 1994) and enable children in need to use their own resources (WHO, 1986), and develop their motivation to cope (meaningfulness), their ability to understand what the challenges are (comprehensibility) and to believe that the resources needed to cope are available (manageability) (Antonovsky, 1996).

METHODS

The selection of participants

The study sample consisted of 3rd to 5th grade elementary school children of both genders. The schools were located in Trondheim, the 3rd largest city in Norway.

Inclusion criteria

Age span: 8-10 years, n=320 girls and boys from the general population were eligible. 163 parents gave permission for their children to participate and provided informed consent. One child had his 8th birthday the day after the survey, and was accepted for participation as an 8 year old. Data collection was completed between 1.12. - 8.12.2014, and included a 20-25 minute assisted self-reported questionnaire.

Procedure

Permission for the study was obtained from the Regional Ethical Committee for medical and health profession research in Mid-Norway (REK) (Appendix 3). Collaboration with The Centre of Health Promotion Work (HIST/NTNU) and the community physician for children facilitated the contact to the school principals who granted permission to recruit participants.

The request to undertake the study was first presented at a principal's meeting for all elementary schools in the area. The first attempt recruited no participants, but the second was successful and gained entrance to four elementary schools and potentially 320 children. Written and oral information was given to the principals and teachers involved (Appendix 2, 4 & 5). The teachers' cooperation was excellent.

In all, 15 school classes, five classes from each 3rd, 4th and 5th grade from four different schools, were asked to participate. On a regular school day, 320 children got oral and written information about the study, including information about the voluntary and anonymous nature of participation. The need for parental consent was explained, as the right to withdraw at any point (Appendix 2 & 5) (Ringdal, 2011). N= 163 children returned the signed consent, 6 of them were absent the day the data were collected, and n=157 participated in the study.

How the study setting was adjusted to children

Before passing out the questionnaires, the children were informed about the exact procedure of marking the response squares, to avoid other types of signatures (such as drawing flowers or hearts on the sheet). In case they wanted to change the mark they were also informed how to fill the whole square, further to give a sign if they wanted the researcher to slow down the speed of reading. Finally, it was made sure they had understood the information, to facilitate maximum cooperation during the interview (Ringdal, 2011). The principal researcher administrated all questionnaires and read out the questions loud and slow, one question at the time, as recommended (Ringdal, 2011). The children marked their responses, and at the end of the session the completed questionnaires were collected, in accordance to the administration manual (Appendix 1 & 2). In the first school, the survey was carried out in a conference room, the only room available at the time having the children seated around a big table. This caused some distraction because the children looked at each other and at each other's questionnaires. In order to keep attention, the complete questions and response alternatives were read out loud and slow while the children marked their answers, next a rapid shift to the next question. This created a quiet and efficient atmosphere that prevented disturbances. The same strategy was used in all schools. In two schools the interviews were conducted in respective classrooms having one pupil at each desk. This seemed to be the best solution since the children were focused on their own questionnaires and the study director who read the questions out aloud.

The measurements

The study instrument used was The Children's orientation scale (C-SOC), where the C-SOC ratings were based on the official Norwegian translation of the instrument (Appendix 2). This is a 19-item orientation to life rating scale that can be completed by children themselves. This

is the first study of this character in Norway therefore other international studies of the C-SOC scale had to be used as reference to the findings.

The C-SOC scale was designed as a childhood extension of Antonovsky's Orientation to Life scale (SOC-29) (Antonovsky, 1987), which is the adult scale previously also tested on children above ten years (Antonovsky, 1993). The C-SOC scale is intended for children aged 5 – 10, with 16 of the 19 items derived from the SOC-29, including all three original dimensions; comprehensibility (Co), manageability (Ma) and meaningfulness (Me), supposedly describing the children's feeling of confidence in the world. Three items are added as distractors in the questionnaire, but excluded in the analysis. The measure consist of a Likert-type scale ranging from 1-4 points assessing the dimensions of comprehensibility; describing children's understanding of their environment (items 10, 11, 12, 16, 18), manageability; describing the feelings of control, and confidence of receiving support when needed (items 2, 6, 7, 9, 14, 17, 19), and meaningfulness; describing the motivation and interest in investing effort for the different tasks' performance (items 1, 4, 5, 13), and how often the item issue appears in their daily life; 1 = never, 2 = some times, 3 = often, 4 = always. Similar to the SOC scoring procedure, a high score means strong (C-) SOC. Seven items are to be reversed (4, 6, 7, 10, 14, 17, 18), and then the scores of the 16 items are added to give the overall score. The highest possible score is 64 and lowest is 16.

Previous findings

The C-SOC scale has previously been validated using a SEM-model. The coefficient alphas for the C-SOC scale resulted in Cronbach's α 0.76 (Efrati-Virtzer & Margalit, 2009). In regression analysis, Cronbach's α was 0.78 to 0.72 (Lackaye & Margalit, 2006; Margalit, AlYagon, & Neuberger, 1995; Margalit et al., 1997), in regression and cluster analysis (using 5-point Likert-type scale) Cronbach's α was 0.80 (Sharabi, Levi, & Margalit, 2012), and in Chi-square and two-way ANOVA analyses Cronbach's α was 0.80 (Al-Yagon & Mikulincer, 2004).

The translation procedure

The C-SOC scale (Appendix 1) was translated into Norwegian, for this study (Appendix 2). Permission to use and to translate the C-SOC scale was given by Professor Malka Margalit.

The study version also included demographic information (age, gender and grade in school). The translation procedure followed the advice of the EORTC quality of life group (Dewolf et al., 2009). At first a forward-translation to Norwegian from the English version, undertaken by one person. Another person, a professor with expertise in child welfare research, translated it back into English and gave some comments on the Norwegian language and sentence structure. At that point “Smiley’s” or smiling face answers were considered. This did not work out because of the reverse-phrased questions. Therefore the original answer solution with Likert scale point’s 1-4 were used. Secondly, two other persons independently translated the original English version into Norwegian; one of them is a professor with experience of research in school psychology and health promotion, the other one, was a fellow student. Two of the three made the comparison between the forward-translations. Words, expressions and the structure of sentences were considered several times before settling for a final version, adjusted for Norwegian children. The version was pilot tested on two girls aged 6, and one boy and girl aged 10. Afterwards some of the questions were readjusted to make them even more understandable for children. The pilot test was undertaken under the assumption that children are able to make subtle distinctions between the concept of health and illness (Turner-Cobb, 2014). The 10 years olds had no difficulties to respond and they were capable to understand the meanings of the questions. They marked their answers without problems. However, the 6 years olds had some difficulties with a few questions. When the administrator explained the meaning, they seemed to understand. The 6 years olds also had the response options read out loud, before marking the answers. It is quite a challenge to use questionnaires for children as young as 5 and 6 years old because one has to be careful they understand the questions. The younger children need to be asked individually to make sure they understand the contents. This was also recommended in Margalit’s administration instructions (Appendix 1). Some reflections around the age differences and the differences in answers between the 6 years old and the 10 years old appeared during the pilot testing, and are discussed later in this article.

After the pilot testing, the final version was translated back by one person, and compared with the original English version by another person. The backward-translation used some different words compared to the original English version expressing the same contents. Therefore the version was accepted for use in the study. The administration manual for the questionnaire was also translated into Norwegian and modified into a Norwegian standard (Appendix 2). The time needed to produce the final product was three months. The Questionnaire was then

sent to the Regional Ethical Committee for medical and health professional research in Mid-Norway for storage and permission to run the study (Appendix 3).

Ethical considerations

In case of observed emotional reactions from the children, a follow up of respondents by school nurses was recommended. The school nurses were informed, but none of them were present at school when information was given to teachers. Therefore only one of the four school nurses could be informed in advance, one directly after, while two were not available.

The data analyses

Frequency analyses

Frequency analyses were run on the demographic variables, also on age and gender (Table 1, 3, 4 and 6) including the overall response frequency (Table 2 and 5). The structure of the C-SOC scale was based on the one-factor solution recommended by Antonovsky (Eriksson & Lindström, 2005; Gana & Garnier, 2000), where both exploratory principal component analysis (PCA) were undertaken including a confirmatory factor analysis (CFA).

Likert scale data (as in C-SOC) allows for parametric statistics of latent variables, and for analyses of continuous variables, 4-point scales are acceptable (Norman, 2010). Scales with many ordinal variables gathered in indexes are treated as continuous variables (Ringdal, 2011).

Principal component analyses and confirmatory factor analyses

The PCA was performed using SPSS version 21, first confirming that the data was suitable for factor analysis (Field, 2013; Hair, Black, Babin, Anderson, & Tatham, 2006; Pallant, 2013; Ringdal, 2011; Tabachnick & Fidell, 2014). The factor solution was based on extraction of factors using PCA, in accordance to findings from scree plot and parallel analyses (Field, 2013; Pallant, 2013). The first step examined whether the 16 items in the Norwegian version had loadings from one common factor. Exploratory PCA with Oblimin (Oblique) rotation was conducted, providing seven factors. Further, two factors were extracted, and also one factor extracted and the three dimensionality was explored. The reliability of the scale was assessed using Cronbach's alpha coefficients (Field, 2013; Hair et al., 2006). The results indicated a

first order one-factor model and two higher order one-factor models, which were tested for fit in CFA using AMOS version 22. Criteria of the CFA analyses and model fit were Satorra-Bentler Chi square (χ^2), degrees of freedom (df), root mean square error of approximation (RMSEA), adjusted goodness-of-fit index (AGFI) and the comparative fit index (CFI). These were used because they were almost independent of model complexity and sample size (Hair et al., 2006). Cronbach's α from the original scale for internal consistency was .72 to .80, and from the Norwegian sample $n=157$ for the total scale .60, and maximum .63 if one item deleted (It19). For the original C-SOC scale Cronbach's α for a three-dimension factor structure model has never been performed before. In the Norwegian sample the three-dimension model gave Cronbach's $\alpha = .51$.

Significance tests

Additional analyses were conducted to examine whether there were differences between age and gender. T-test was used to examine gender differences, and bivariate One-way ANOVA was used to test differences related to age (Field, 2013; Hair et al., 2006). Assumptions for ANOVA was controlled through inspection of the output after the initial run of the ANOVA analysis, in line with Pallant (Pallant, 2013). The significance at $p < .05$ (95%CI) were set for all tests.

RESULTS

The descriptive data analyses

Frequency analyses

Frequency analyses (Pallant, 2013) were conducted on demographic variables gender and age, and on the response frequency of C-SOC, presented in table 1. All of the participants in the sample ($n=157$) completed the questionnaire and were therefore included in the study. There were no missing values on variables score. The mean age of the boys was 8.96 (SD/. 863) of the girls 8.88 (SD/. 811).

Table 1. Frequency of respondents according to age and gender, (N=157).

<i>Gender</i>	<i>N (%)</i>	<i>Age</i>	<i>N (%)</i>
Girls	77 (49%)	8 year	61 (38,9%)
Boys	80 (51%)	9 year	47 (29,9%)
		10 year	49 (31,2%9)

The means and standard deviations of the SOC score

A low score indicated SOC was weak, while a high score indicated strong SOC. Item 4, 6, 7, 10, 14, 17 and 18 were reversed in the analysis. Descriptive statistics of the C-SOC scale had the weakest mean score for item 19 (Mean 2.30/SD.738) and the strongest mean score for item 13 (Mean 3.36/SD.753). Descriptive statistics for all items are presented in table 2.

Table 2: Descriptive statistics of all variables of C-SOC scale N=157.

	Variable name	Minimum	Maximum	Mean	SD
1	The things I do every day give me pleasure and are fun	2	4	2.96	.587
2	When I need help, there is someone around to help me	2	4	3.13	.628
4	I am bored with the things I do every day	1	4	3.26	.556
5	I care about what goes on around me	1	4	2.86	.804
6	Kids that I counted on, disappointed me	2	4	3.22	.575
7	I feel that I'm not being treated fairly	1	4	3.26	.692
9	Even when things are tough for me, I'm sure they will work out in the end	1	4	3.08	.832
10	I feel confused, mixed up	1	4	3.07	.589
11	When my friends ask me for something, I understand what they want	1	4	3.13	.667
12	I can solve my problems	1	4	3.12	.624
13	I'm interested in lots of things	2	4	3.36	.735
14	I have a hard time doing most of the things I have to do	1	4	3.11	.554
16	When someone gets mad at me, I understand why	1	4	2.53	.789
17	I feel sorry for myself	1	4	3.28	.742
18	I feel that I don't know what to do in class	1	4	3.17	.828
19	When I want something, I'm sure I'll get it	1	4	2.30	.738

The strength of SOC

Sum scores of the study varied in strength of SOC, from 34 to 58. The lowest possible score was 16 and the highest was 64 (Appendix 2). In Tables 4 and 5 the statistical strength of SOC is presented as related to age and gender. The lowest scores, (34), were given by a boy and a

girl aged 10. The highest score, (58), was made by a boy aged 9. Antonovsky stated the individual scoring was not of key importance because of the risk to stigmatize the individual (Antonovsky, 1987). According to Idan and Margalit (2011) the developing sense of coherence is seen as a personal resource and the measurement is seen as a personal guide for reflection and as a starting point in the process of building a stronger SOC, by strengthening the GRR's. Because the intention of this study was to validate the scale, the strength of SOC was presented as above and in Table 3 and 4.

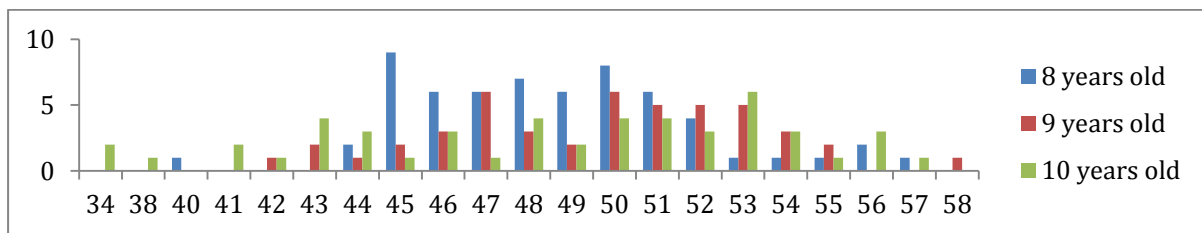


Table 3: Descriptive statistics of C-SOC score according to age

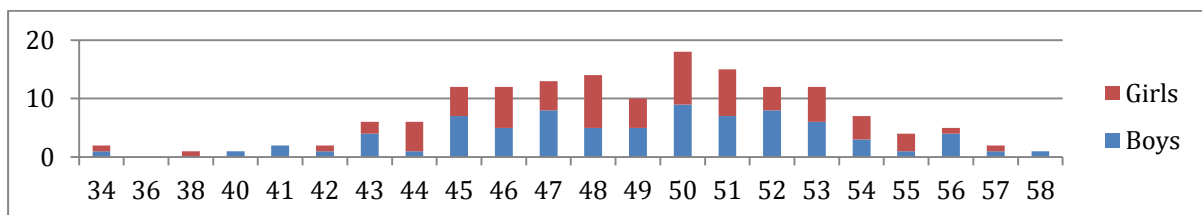


Table 4: Descriptive statistics of C-SOC score according to gender

Principal Component Analyses (PCA) and Confirmatory Factor Analyses (CFA)

Before the PCA and CFA analyses the data were controlled for suitability in line with assumptions for factor analyses.

Sample Size

The valid sample size for the analyses was n=157. It is recommended to have sample sizes exceeding 5 participants per analyzed variable (Norman, 2010). In line with general recommendations for PCA, the study aimed at a ratio of 10:1, having at least 10 participants per analyzed variable (Field, 2013; Hair et al., 2006). The sample size of n=157 gave 9.8 observations per analyzed variable, close to 10 observations per item. This was considered acceptable for PCA/CFA. All respondents gave replies to each item. Only a few questionnaires had to be replaced because of drawings on the scanner points 😊.

Outliers

Examination of boxplots identified three cases of outliers, none extreme (Field, 2013; Pallant, 2013; Tabachnick & Fidell, 2014). These were the ones with the weakest SOC (see Tables 3 & 4), and of special interest to both research and practice. Therefore they were not excluded from the sample. Since it was expected on average 30 % of children have a chronic disease or ailment, and 15-20 % of the Norwegian child population in the age span 3 to 18 struggle with mental disorders (St. Meld. 34, 2012-2013), therefore outliers were expected. This could also be considered as natural inherent to the nature of C-SOC.

Normality

Ideal research data should have a normal distribution, in order to produce accurate means. In significance tests the sampling distribution must also be normal (Field, 2013; Hair et al., 2006). The 16 variables of the C-SOC scale were computed into one index, using the reversed version of seven items. The units were normally distributed, and they were symmetrically (Field, 2013; Pallant, 2013; Ringdal, 2011), as shown in the histogram below.

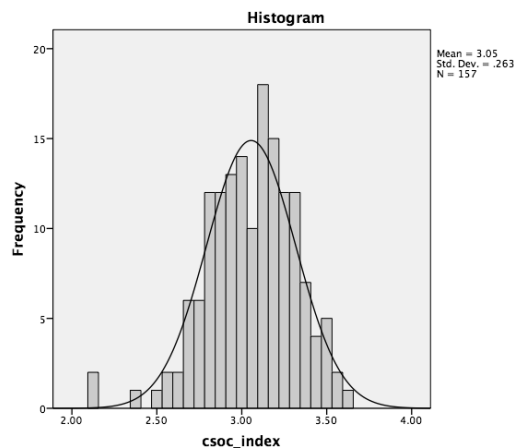


Table 5. Histogram: Index of C-SOC scale, unit's distribution (Mean=3.05, St.d =.263, n=157).

The descriptive frequencies of all respondents are presented in Table 6, including separate columns for gender and age. There were almost no differences between genders in terms of stronger or weaker scores. Between ages there were more 10 years olds who scored weaker than both 8 and 9 years olds.

Table 6. Descriptive frequency of C-SOC score for all, and according to gender and age

Mean sum score	C-SOC all	C-SOC Girls (n=77)	C-SOC Boys (n=80)	C-SOC 8 y (n=61)	C-SOC 9 y (n=47)	C-SOC 10 y (n=49)
Min 2.13	1,3%	1,3%	1,3%	0,0%	0,0%	4,1%
2.38-2.56	2,5%	1,3%	3,8%	1,6%	0,0%	6,1%
2.63-2.75	8,9%	10,4%	7,6%	3,3%	8,5%	16,3%
2.81-2.94	23,5%	22,1%	25,1%	34,4%	23,5%	10,1%
Mean 3.0	8,9%	11,7%	6,3%	11,5%	6,4%	8,2%
3.06-3.19	27,5%	28,6%	26,4%	32,7%	27,7%	20,5%
3.25-3.38	19,7%	18,2%	21,3%	9,8%	27,6%	24,4%
3.44-3.56	7,0%	6,4%	7,6%	6,5%	4,3%	10,1%
Max 3.63	0,6%	0,0%	1,3%	0,0%	2,1%	0,0%
C-SOC index	Mean (SD) 3.0 (.26)	Mean (SD) 3.0 (.25)	Mean (SD) 3.0 (.27)	Mean (SD) 3.0 (.20)	Mean (SD) 3.1 (.22)	Mean (SD) 3.0 (.34)

Multicollinearity: Factoriability of R

R-Matrix. Internal Pearson's correlation coefficients (Pearson's r) between items should be $\pm .3$, which represent a medium effect, while $\pm .5$ represent a large effect. Values of $\pm .1$ represent a small effect (Field, 2013; Hair et al., 2006; Tabachnick & Fidell, 2014). The diagnostics for Multicollinearity was conducted through a visual inspection of **R-Matrix** ("Correlation Matrix"). The inter item correlations measured are presented in Table 7. The **R-Matrix** showed significant inter-item correlations between items in related dimensions, although, most correlations were $\pm .3$. Some of the Ma and Co dimension items inter correlated, and the two dimensions together revealed five inter item correlations $\pm .3$. Item 6 and 19 from the Ma dimension correlated stronger with items from the Me dimension. Me dimension items together with Ma items 6 and 19 revealed two inter item correlations $\pm .3$. The strength of significant inter item correlations varied from $r = .434$ ($p \leq .01$) to $r = .159$ ($p \leq .05$), which was moderate to weak. Inter correlations between the three dimensions were also explored, revealing moderate to weak significance: Me-Ma $r = .250$ ($p \leq .01$), Me-Co $r = .216$ ($p \leq .01$), Ma-Co $r = .346$ ($p \leq .01$). Item-to-total correlations displayed significant correlations $\pm .3$ for 14 items. Item 4 ($r = .299$, $P \leq .01$) and 19 ($r = .167$, $P \leq .05$). Although there were inter item correlations failing to exceed the cut off value, all items followed the explorative PCA analysis. In CFA analysis item 4 and 19 were deleted.

Correlations Matrix

Table 7. Correlation matrix for all variables of CSOC and for the components of SOC, meaningfulness (ME), manageability (MA) and comprehensibility(CO)

	C- SOC1	C- SOC2	C- SOC4	C- SOC5	C- SOC6	C- SOC7	C- SOC9	C- SOC10	C- SOC11	C- SOC12	C- SOC13	C- SOC14	C- SOC16	C- SOC17	C- SOC18	C- SOC19	Sense of Me	Sense of Ma	Sense of Co	Sense of coherence
C-SOC1	-	.083	.247**	-.011	.235**	.120	.177*	-.011	-.029	.083	.077	.033	.058	.099	.159*	.204*	.494**	.294**	.121	.398**
C-SOC2		-	.143	.048	.043	.172*	.115	.097	.129	.026	.108	.142	.018	.045	.092	.000	.157**	.437**	.125	.351**
C-SOC4			-	-.147	.312**	.117	-.130	.042	.031	.019	.002	.131	-.024	.035	.204*	.167*	.374**	.207**	.103	.299**
C-SOC5				-	-.082	.091	.075	.129	.022	.021	.434**	.065	.138	-.050	-.001	-.091	.662**	.018	.106	.306**
C-SOC6					-	.279**	.147	.122	.057	-.024	-.122	.098	.042	.205*	.088	-.012	.099	.498**	.100	.350**
C-SOC7						-	.106	.284**	.203*	.132	.148	.137	.115	.373**	.218	-.145	.203*	.578**	.328**	.540**
C-SOC9							-	.053	.108	.005	-.018	-.035	.070	.169*	.071	-.030	.050	.511**	.110	.344**
C-SOC10								-	.222**	.221**	.148	.269**	.195*	.349**	.145	-.019	.147	.342**	.574**	.510**
C-SOC11									-	.332**	.036	.151	.139	.081	.133	-.065	.050	.196*	.611**	.414**
C-SOC12										-	.225**	.145	-.027	.146	.107	.116	.155	.166*	.521**	.394**
C-SOC13											-	.133	.065	.113	.040	.035	.723**	.120	.168*	.412**
C-SOC14												-	.080	.169*	.067	-.131	.155	.354**	.234**	.358**
C-SOC16													-	.079	.159	-.075	.114	.098	.555**	.359**
C-SOC17														-	.166*	.053	.077	.634**	.275**	.497**
C-SOC18															-	.006	.151	.219**	.596**	.455**
C-SOC19																-	.106	.255**	-.018	.167*
Meaningfulness																	-	.250**	.216**	.607**
Manageability																		-	.346**	.791**
Comprehensibility																			-	.741**
C-SOC index																				-

**p ≤ .01

*p ≤ .05

Bartlett's test of sphericity

Bartlett's test of sphericity examined the entire correlation matrix. With statistical significance ($\text{sig} > .05$) this indicated that there were sufficient correlations among the variables to proceed with PCA (Hair et al., 2006). Bartlett's test of sphericity yielded Approx. Chi-Square of 298.056. (df 120), with statistically significant correlations between some variables ($p < .001$).

Factor rotation and factor extraction

The adult SOC scale has previously been validated and found reliable, but the construct validity is not completely clear (Eriksson & Lindström, 2005) although there is evidence of correlations between factors of the SOC scale (Gana & Garnier, 2000; Moksnes & Haugan, 2013; Naaldenberg et al., 2011). With the C-SOC scale being an adjustment of the SOC scale, it was assumed the factors correlated also for C-SOC (Field, 2013). Therefore Oblimin (Oblique) rotation was chosen when running exploratory PCA.

Kaiser-Meyer-Olkin test (KMO)

There is some evidence that the Kaiser's criterion is accurate when there are less than 30 variables and the communalities after extraction are all greater than .7 (Field, 2013). The KMO ranges from 0 to 1, and .6 is suggested as the minimum value for good factor analysis (Tabachnick & Fidell, 2014). As a guideline KMO values close to 1 are seen as strong, while values in the .60s are weaker and values of .5 are barely acceptable, and lower values acquire the collection of more data (Hair et al., 2006). In this study Kaiser-Meyer-Olkin test (KMO) in exploratory PCA for all variables yielded .626, and were satisfactory for factor analysis.

Catell's scree test

The scree plot demonstrated a bend of the elbow at the third factor. According to the guidelines provided in Field (2013) and Tabachnick and Fidell (2014), the plot indicated that a two factor solutions would be appropriate. The two factors recommended in the scree plot explained 27 % of the variance. The scree plot provides a fairly reliable criterion with samples of more than 200 participants (Field, 2013). In this sample with $n=157$, the criterion was not completely reliable.

Parallel analysis

Initial Eigenvalues were obtained from PCA that generated seven factors with Eigenvalue > 1. As one factor loaded for only one item and three factors loaded for only two items, this was not acceptable for a good factor solution, because three is seen as good practice, while four is to be preferred (Hair et al., 2006). This was further investigated with a Monte Carlo PCA for parallel analysis. The initial Eigenvalues were compared to the parallel analysis in Table 8, and resulted in a recommendation of extraction of two factors for this sample (Field, 2013; Watkins, 2005).

Table 8. Comparison of Eigenvalues from PCA and criterion values from parallel analysis.

Component number	Actual Eigenvalue from PCA	Criterion value from parallel analysis	Decision
1	2.630	1.607	Accepted
2	1.733	1.472	Accepted
3	1.353	1.360	Rejected
4	1.249	1.270	Rejected
5	1.162	1.191	Rejected
6	1.064	1.124	Rejected
7	1.029	1.065	Rejected

Note: Monte Carlo parallel analysis conducted March 9th, 2015 (9:32:01)

Factor extraction

The acceptable strength of factor loadings depended on the sample size, for this sample (n=157) loadings were recommended to be .40-.45 (Hair et al., 2006). According to Tabachnik and Fidell (2014) this was considered as fair loadings, whilst .32 was poor. If four or more variables loaded higher than .60, this was reliable regardless of sample size. Ten or more variables loading higher than .40 was reliable in a sample size larger than 150 (Field, 2013). The findings of this study are presented in Tables 9-13.

Exploratory principal component analysis (PCA)

Where the data collected in this study, confirming the one factor solution Antonovsky suggested? The exploratory PCA was undertaken using Direct Oblimin rotation. The component matrix displayed all items were divided in seven factors with fifteen loadings higher than .40, twelve of them loaded higher than .60, and one loaded lower than .40. (Sig. .000). Three of the factors loaded for only two items. This was not acceptable for a good factor solution, because three is seen as good practice, while four is to be preferred (Hair et

al., 2006). *Communalities*. Sample sizes between 100 and 200 are good enough if communalities range .5 or higher (Field, 2013). In this sample exploratory PCA showed communalities of 14 variables ranging higher than .5, four of them ranging higher than .6, and six of them ranging higher than .7. Two variables ranged lower than .5 (.490 and .483).

One factor extracted

With one factor extracted, only seven items loaded higher than .40, and one item (it19) loaded negative - .024. *Communalities*: Communalities ranged low from .001 to .422.

Two factors extracted

With two factors extracted with Oblimin rotation, there were 11 items loading higher than .40, three items loading higher than .60, and there were two items with negative loadings. *Communalities*: Communalities in the two-factor extraction ranged low, all < .5. Extraction of factors would decrease communalities because the factors retained would not explain all of the variance. In Principal Component analysis the communalities are not as important as in factor analysis (Field, 2013). Factor loadings and communalities for all variables are reported in Table 9.

Table 9. Factor loadings and communalities for two factors extracted from C-SOC. Cronbach's $\alpha=.60$.

<i>Component loading and communality</i>			
Item number	F 1	F 2	Communality
It 1		.486	.295
It 2	.314		.107
It 3		.625	.422
It 5		-.572	.410
It 6		.586	.431
It 7	.631		.422
It 9	.239		.065
It 10	.640		.415
It 11	.476		.228
It 12	.437		.197
It 13		-.437	.364
It 14	.458		.210
It 16	.338		.128
It 17	.541		.332
It 18	.389		.224
It 19		.325	.112

Factor interpretation for a two-factor structure

Visual inspection of the variables gathered in the respective two factors, revealed that all Co dimension variables (10, 11, 12, 16, 18) loaded from the same factor (factor 1), together with five of the Ma dimension variables (2, 7, 9, 14, 17). The Me dimension variables (1, 4, 5, 13) loaded from another factor (factor 2), together with two of the Ma dimension variables (6, 19). When computing new variables with each one index for the two factors found, and then running PCA, there was one common factor explaining 71% of the variance with factor loadings for both variables at .847, and communalities .718 for both variables. The results are shown in Table 10. This gave an idea of a higher order one-factor structure.

Table 10. Factor loadings and communalities for indexes of two factors extracted from C-SOC. Cronbach's $\alpha=.60$. (KMO .626, Approx. Chi square 298.056, df 120, Sig.000)

<i>Component loading and communality</i>		
Dimension	F1	Communality
Me and two items from Ma	.847	.718
Co and five items from Ma	.847	.718

The three dimensions factor structure

The three dimensions were also explored with PCA. Visual investigation of the seven factors from PCA with oblimin rotation, revealed a pattern where the items of the dimension loaded from common factors to a certain degree. With three factors extracted there was also a pattern of items from the same dimension loading from common factors, but there were also some items loading from common factors with different dimension items, and items loading high from all three factors. Therefore the dimensions were explored one by one. Factor loadings and communalities for the three dimensions are shown in Table 11. *Communalities:* Communalities ranged low for most items. Factor loadings were approximately acceptable for all items except for item 1, 4 and 19 when having one factor extracted for each dimension. Because of the negative and low loadings for two items of the meaningfulness dimension, two factors were also extracted as shown in Table 11. This revealed high factor loadings and communalities. A two-factor solution for the two other dimensions revealed strengthening of communalities, but the factor loadings did not reveal a better solution, therefore it is not shown in Table 11.

Table 11. Factor loadings for each of the three SOC dimensions Meaningfulness (Me), Manageability (Ma) and Comprehensibility (Co) with one factor extracted, and also with two factors extracted for the Me dimension.

<i>Component loading and communality</i>						
Item number	F1	Communality	F1	F2	Communality	Cronbach's α
Me dim						
It 1	-.04	.002		.786	.628	.32
It 4	-.29	.087		.784	.636	
It 5	.85	.729	.840		.729	
It 13	.80	.639	.843		.723	
Ma dim						
It 2	.35	.126				.40
It 6	.57	.328				
It 7	.74	.550				
It 9	.38	.148				
It 14	.41	.171				
It 17	.66	.446				
It 19	-.18	.033				
Co dim						
It 10	.65	.423				.47
It 11	.69	.481				
It 12	.61	.375				
It 16	.41	.175				
It 18	.47	.222				

Factor interpretation for the three dimensions factor structure

The next step was to explore whether the three dimensions loaded from one common factor. PCA of indexes of the three dimensions are presented with factor loadings and communalities in Table 12. With one higher order factor extracted all three dimensions had factor loadings higher than .60, which meant they loaded adequately from one common factor. Sense of coherence seemed to be acceptable as one common higher order factor. The higher order

factor model hypothesizes the existence of meaningfulness, manageability and comprehensibility as three first order factors (Gana & Garnier, 2000).

Table 12. Factor loadings and communalities for the meaningfulness (Me), manageability (Ma) and comprehensibility (Co) dimensions. Cronbach's $\alpha = .517$. (KMO .600, Approx. Chi-square 32.735, df 3, Sig.000).

<i>Component loading and communality</i>		
Dimension	F1	Communality
Me	.643	.413
Ma	.764	.584
Co	.740	.547

Because of negative loadings for three items in the two-factor solution and for two items in the three-dimension solution, there was a need to make further investigations.

Confirmatory Factor Analyses (CFA)

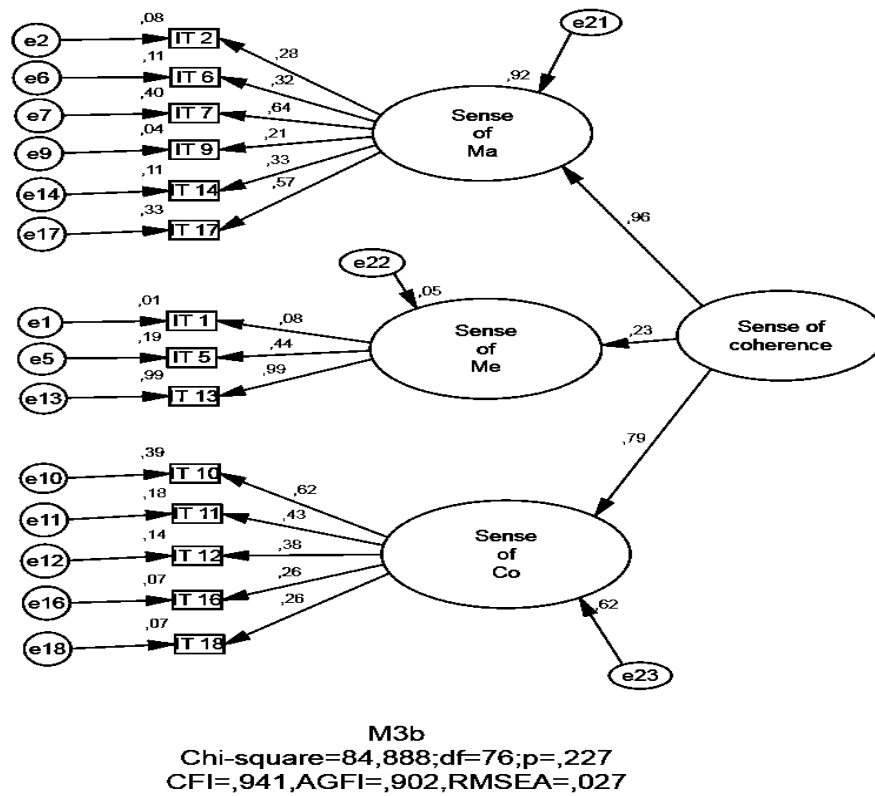
The explorative PCA gave some indications of a higher-order model both for the two-factor solution (M2) and for the three-dimension factor solution (M3). The models were further tested with CFA in AMOS (version 22), also including a direct (first order) one-factor solution (M1), since Antonovsky suggested this. Factor loadings in all basic models were low, with only three to five loadings higher than .40 and some close beneath .40. The problem with negative loadings was continued in CFA. This led to an inspection of the correlation matrix and the item to total correlation (Hair et al., 2006), revealing two items with correlations weaker than .3, items 4 and 19. After first finding reasonable causes for the items to be deleted (see discussion), they were removed from the sample in all three models (M1b, M2b, M3b). This gave a better fit for M1 and M3, but it was not possible to admit M2. The best fit was found for M3b, the higher order three-dimension model. Models and model fit is presented in Table 13. For the best model fit there were three factors loading higher than .60 and one loading .57. Item 13 loaded extremely high at .99, and the higher order factor loaded .96 for the Ma dimension. This is not typical, however, in this phase of the research it was assessed not to have any practical significance (Hair et al., 2006). Although the model fit of the three-dimension factor structure model was acceptable, the factor loadings were low for eight items. Therefore the factor structure of the C-SOC scale should be explored further in future research. Factor loadings for the model are shown in Figure 1.

Table 13: Goodness of fit indices for the first order one factor model, the second order two factor model and the second order three dimension model.

Model description	χ^2	df	RMSEA	AGFI	CFI
M1 First order one factor model	182.264	105	.069	.840	.549
M1b First order one factor model with items 4, 19 deleted	114.667	77	.056	.875	.750
M2 Higher-order two factor model	169.044	105	.063	.851	.663
M2b Higher-order two factor model with items 4, 19 deleted	Not admitted				
M3 Higher-order three dimension model	159.752	104	.056	.854	.707
M3b Higher-order three dimension model with items 4, 19 deleted	84.888	76	.027	.888	.941

Note: All coefficients and numbers refer to model fit indices: χ^2 : Satorra-Bentler Chi square; df: degrees of freedom; RMSEA: root mean square error of approximation; AGFI: adjusted goodness-of-fit index; CFI: comparative fit index.

Figure 1. Model M3b from CFA in AMOS version 22.



Cronbach's α reliability

Cronbach's α is a value that increase with the amount of items in a scale in psychological constructs, Cronbach's α values below .7 can be expected, and in early stages of research Cronbach's α values are found on levels as low as .5 (Field, 2013). Standard acceptable values lies between .7 and .9 (Hair et al., 2006). With reverse phrasing items in the scale, this also will affect Cronbach's α , and it is important to reverse items before running the analysis (Field, 2013). The C-SOC scale is a hypothetic concept that cannot be measured directly (a latent variable), and a compound concept describing sense of coherence in the life of children. The index of the C-SOC scale was used in the examination of reliability. For all variables in this study Cronbach's α yielded .60, and maximum .63 if item 19 was deleted, and .61 if item 5 was deleted. No items were initially deleted. The index for each of the two factors extracted in the two-factor solution was also used in the examination of reliability. Cronbach's α for factor 1 (Ma5it/Co5it) was .60, and for factor 2 (Me4it/Ma2it) .32. When item 19 was removed, Cronbach's α was .33. In all, Cronbach's α for the three dimensions was low. For index of each dimension, Cronbach's α was .32 for the Me-dimension, .40 for the Ma-dimension, and .47 for the Co-dimension. From one index of all the three dimensions Cronbach's α yielded .51, which can be seen in early research. Cronbach's α for the three dimensions after two items were deleted (It 4, 19) yielded .47. Antonovsky's one-factor solution was confirmed in a higher-order three-dimension model (M3) with good model fit, but with low reliability. The scale needs further investigation and adjustment.

Additional analyses

T-test

T-test of dependent variable (16 items) and independent variable gender showed in Levene's test for Equality of Variances, 13 variables were significant at level $p > .05$ which meant the variance in the groups were equal. From these, item 2: "When I need help with something, there is someone around to help me", showed significant difference between the groups with sig. 2-tailed in line 1 $< .05$. The mean score for girls were higher than for boys, which meant that girls felt there were someone around to help them more often than boys did. The three items "I am bored with the things I do every day" (It 4), "I struggle with most of the things I have to do" (It 14) and "When I want something, I am sure I will get it" (It 19) were

significant at level $p < .05$, which meant the variance in the groups were unequal, therefore, parametric tests could give inaccurate results. Sig. 2-tailed in line 2 was significant $< .1$ for item 4 and 19. There were also gender differences for these two items. Both items had a mean score higher for boys than for girls, which meant boys were “more bored with the things they had to do every day”, and they were “more certain if they wanted something, they would also get it” than girls were.

Assumptions for ANOVA

Level of measurement: The dependent variable, which was an index of all C-SOC items, was seen as a continuous variable (Hair et al., 2006; Pallant, 2013).

Random sampling and independence of observations: The scores were obtained using the available sample from elementary schools in Trondheim. Within the settings available the data collection were provided as well as possible to be individually independent of other respondents (Hair et al., 2006; Pallant, 2013).

Normal distribution of the dependent variable: Having a sample size of $n=157$ in this study, a violation of this assumption should not cause any problems. The inspection of the histogram revealed normal distribution of the dependent variable (Hair et al., 2006; Pallant, 2013).

Homogeneity of variance: The distribution of the sample were normal and symmetrically, therefore no transformation of data were considered necessary (Hair et al., 2006; Pallant, 2013).

One-way ANOVA

The one-way ANOVA of dependent variables, 16 items from C-SOC, and independent variable age showed two variables with significant differences between groups ($p < .05$): “The things I do every day give me pleasure and are fun” ($F = 3.089$, $p = .048$). The mean square between groups was 1.037, within groups .336. The significant difference in the mean score was found between 8 and 10 years olds only ($p < .05$). “When I want something, I am sure I will get it” ($F = 5.417$, $p = .005$). The mean square between groups was 2.791, within groups .515. The significant differences in the mean score were found between both 8 and 10 years olds and 9 and 10 years olds ($p < .05$). There was no significance in mean difference

between 8 and 9 years olds. The results showed that 10 years olds were less satisfied than 8 years olds with “what they did every day gave them pleasure and were fun”. 10 years old were also less sure than both 8 and 9 years old about “if they wanted something they would get it”.

DISCUSSION

PCA and CFA analyses

The aim of this study was to explore the psychometric properties, the factor validity and reliability of the Children’s Orientation scale, in a Norwegian sample. This was the first Norwegian translation of the scale and the first validation study in Norway. Based on Antonovsky’s recommendation of a one-factor solution, a principal component analysis with Oblimin (Olique) rotation was used to explore the factor structure. Firstly, a seven-factor solution was extracted by SPSS. Following the advice of parallel analysis and scree plotting, secondly, two factors were extracted, and also a one-factor extraction and the three dimensions factor structure was explored in PCA. This resulted in exploration and evaluation of a first order one-factor model (M1), and two higher order models (M2, M3). After deleting two items (it 4, 19), the higher order three-dimension model gave the best fit.

Item-to-total correlation demonstrated two items with correlations weaker than the cut off value, items 4 and 19. Item 4 from the meaningfulness dimension, “ I am bored with the things I do every day” in reversed phrase was rated to have similar contents as item 1 “The things I do every day gives me pleasure and are fun”. Items 1 and 4 also seem to be based on the same item from SOC-29 (item 16). Item 4 was therefore deleted in CFA. Item 19 from the manageability dimension, “When I want something, I’m sure I’ll get it” was rated to have a difficult content in accordance to children’s sense of coherence. If the item is rated in a holistic life view setting, it could be asking whether the child is confident that expectations for life will come forward. Children’s cognitive development is more likely to rate the content to be a question of certainty to get hold of desired objectives or experiences. In that case then the question might express whether the child “is spoiled”. In today’s society many children, at least in Norway, are used to get what they want from objectives and experiences. The changes in the ways of living after original instrument was developed could also influence the meaning of the item. Because of the difficulty of what the item asks for, and the weak item-

to-total correlation, it was deleted in CFA. After item deletions CFA improved, and the best fit was found in the higher order three-dimension factor solution.

Cronbach's alpha for the three dimensions was low. The item's factor loadings were also low, but acceptable with four items loading higher than .6. The low factor loading for the Me-dimension is an issue for further investigation. There is a difference in children's and adult's thoughts of what gives meaning in life (Mowder, Rubinson, & Yasik, 2009). Considering this, future research for the C-SOC scale should look for adjustments of items to reflect the perspective of children from their cognitive and emotional developmental level in relevant age groups (age 5-10). The manageability dimension loaded extremely high, even after deletion of item 19. This is not typical (Hair et al., 2006), and should be investigated further. The items of the Ma-dimension seemed faire to ask children, except item 19. The comprehensibility dimension loaded within good ratings, and the items seemed to be faire to ask children. Though, one item appeared to be difficult in the data collection, item 18 "I feel that I don't know what to do in class". The Norwegian translation also used a negative phrasing. It seemed to be better to phrase it differently, like: "It is difficult for me to know what to do in class". Therefore it was recommended to reformulate the question in the future.

Additional analyses

Regarding age, two items demonstrated significant differences. Both the items: "The things I do every day give me pleasure and are fun" (It 1), and "When I want something, I'm sure I'll get it" (It 19) decreased from 8 to 10 years, item 19 also decreased from 8 to 9 years. In the perspective of health promotion the decreasing values of item 1 is not positive for health development, especially if it continues through life. Having pleasure and fun, are important aspects, and potential factors worthy of health promotion. One could imagine that the decrease of these conditions in early life in the long run also could cause a collapse of health depending on the individual. SOC is strongly and negatively related to aspects like demoralisation and hopelessness (Lindsström & Eriksson, 2010). This could be the ultimate outcome with diminishing expectations of life giving pleasure and fun. In all ages participation in shaping of one's own life experiences, and the experience of manageability gives meaning to existence having a positive impact on SOC (Løndal, 2010). Also life experiences of consistency and underload-overload balance are contributory of shaping a strong SOC (Antonovsky, 1996). Achievements at school seem to determine perceptions

about self. Poor achievements result in a decreasing self-image. Although the child's foundation for a positive self-image is laid early in childhood with intimate caretakers, primary school age still is an important phase for the development of psychosocial competences, self-worth and wellbeing. Positive or negative development partly depends on experiences of results in learning and evaluation of achievements by parents and teachers (Krause, 2011). School plays an important role in children's development of wellbeing, and teachers need to be aware of their student's problems. Children need to be enabled to identify their resources, to feel that they belong to the school community, and they need maintenance and strengthening of their self-confidence all the way through the education programme (Krause, 2011). There was also a need to have a discussion whether item 19 should be deleted. In a health promoting view, if expectations for life in accordance to "be sure they get what they want" from life, are decreasing, this would certainly have an effect on the direction of health development. The item was here recommended developed to rather ask for life expectations at children's cognitive and emotional developmental level, for example to ask for what is important for children to have good experiences in daily life and what is important to feel good about life.

Children's development

The scanning of the questionnaires showed that most children had been very obedient to the information of accuracy and not made drawings on the sheet, and cooperated successfully (Ringdal, 2011). Based on the age of the respondents, 8-10 years old, this was surprisingly well done, and besides performing well, this fact may indicate that children are able to make subtle distinctions between the concepts of health and illness (Turner-Cobb, 2014). The development of SOC in childhood is going through an important and comprehensive change in the period between ages 5 to 10 (Erikson, 1968a,b). This is the age span this questionnaire is intended for. This must always be considered in research approaches to children. The developing sense of coherence is a personal resource (Idan & Margalit, 2011). Therefore the C-SOC questionnaire can be seen as a personal guide for self-reflection and the strengthening of children's SOC. Therefore all items need to be included in order to estimate whether there are lack of resources. This means that replies on all items need to be obtained and evaluated to reflect on improvements. Furthermore, this study reveals a need for future studies to develop the instrument in the same way as the original SOC scale was developed starting with age appropriate interviews of children and find out whether a similar construct to the adult SOC

would be obtained. Because Antonovsky assumed SOC was rather stable in adulthood he thought the C-SOC scale would be more relevant for the understanding of the development of SOC in children. However, contemporary research findings indicate SOC continues to develop throughout the life course (Lindström & Eriksson, 2010).

The C-SOC raises some questions regarding age, development of children and responses. The pilot study revealed differences in how children responded depending on age, here the 6 years olds and the 10 years olds. For example, the question: “When I need help, there is someone around to help me” the 6 years olds answered “often” while the 10 years olds answered “some times”. This probably means the 10 years old feel they are more independent than the 6 years old.

Ethical considerations

A research study needs to secure its participants, here the children, to not suffer negative consequences. Earlier in this thesis it was mentioned there is a huge lack of school nurses in Norway. There are three aspects to this. School nurses run a tight time schedule and are seldom available (Barneombudet, 2013; Whitehead, 2006). Time also limited the researchers possibility to get into a deeper contact with the nurses. In general, such facts have to be considered in the study design: there is a need for enough time and space for all parts of the study (Malterud, 2011). However, the lack of contact with school nurses did not affect data collection, it was more a question of the researchers desire to make sure the children were taken care of, in case the study caused emotional reactions in the children. Therefore the teachers were informed, and they ensured they had the competence to care for this.

Limitations

The sample size in this study is small (n=157), which must be taken into consideration. Further, the differences in the settings where the study was conducted influenced the performance of the children. Therefore the experience from the first interview setting made it necessary to improve the conditions continuously to make the setting and conditions for filling the questionnaires more appropriate for children. This has to be taken into account in future studies.

CONCLUSION

The results of this study exposes the psychometric properties of the C-SOC scale in a Norwegian sample also indicating there is a need for improvements. The comprehensibility dimension items seemed adequate giving reasonable factor scores, as did most of the manageability dimension items. Some items of the manageability dimension and the meaningfulness dimension were in need of adjustment to be appropriate for the cognitive and emotional developmental level of children. The higher order three-dimension factor solution showed a good model fit. However, there is a need for further adjustments in future Norwegian studies, improving the child appropriateness and adjustment for Norwegian children.

The contemporary Global individualistic trend of self-centeredness places freedom of choice and autonomy above the needs of the collective. Further, the complexity of society and the speed of change, as well as the abundance of available activities can confuse and fragmentize life to the extent it affects the basic conditions for the development of health and life. Expert systems are replacing peoples ordinary need to trust their own judgements or finding support in the everyday settings of family and friends (Lindsström & Eriksson, 2010). This makes it difficult especially for children to find good role models when the parents, have individualistic ideals and the children as a consequence distrust their confidence and abilities to enable coping and meet future challenges – what happens if they don't succeed? There is a need of a supportive school community where all children can learn to think and act in ways that promote health and learn to build new trustworthy relationships, find alternative personal activities in their own pursuit of a desired life direction worth the investment. The C-SOC scale seems to be a potential instrument to evaluate all of this comprehensively although there is still a need for improvements in order to make it even more children appropriate.

References

- Al-Yagon, M., & Margalit, M. (2007). Loneliness, sense of coherence and perception of teachers as a secure base among children with reading difficulties. *European Journal of Special Needs Education, 21*(1), 21-37. doi: 10-1080/08856250500268619
- Al-Yagon, M., & Mikulincer, M. (2004). Patterns of Close Relationships and Socioemotional and Academic Adjustment Among School-Age Children with Learning Disabilities. *Journal of Learning Disabilities Research & Practice, 19*(1), 12-19.
- Antonovsky, A. (1979). *Health, stress and coping*. San Fransisco & London: Jossey-Bass Inc. Publishers.
- Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well* (1 ed.). San Francisco: Jossey-Bass Inc. Publishers.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Journal of social science and medicine, 36*(6), 725-733.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International, 11*(1).
- Barneombudet. (2013). Barneombudets fagrappport. Helse på barns premisser. <http://www.barneombudet.no> .
- Bronikowski, M., & Bronikowska, M. (2009). Salutogenesis as a framework for improving. Healthresources among adolescent boys *Scandinavian Journal of Public Health, 37*(5), 525-531.
- Burns, S. H. (2013). Assets for health. (978-0-9572533-2-2(pbk.)). Retrieved 20.3.15, from Governance International: http://www.coproductionsotland.org.uk/files/8213/6189/6682/Co-production_of_Health_and_Wellbeing_in_Scotland_2013.pdf - page=28
- Dewolf, L., Koller, M., Velikova, G., Johnson, C., Scott, N., & Bottomley, A. (2009). EORTC Quality of Life Group, Translation Procedure (3 ed.). Retrieved 28.10.14 from: http://groups.eortc.be/qol/sites/default/files/archives/translation_manual_2009.pdf: EORTC.
- Efrati-Virtzer, M., & Margalit, M. (2009). Student´s behaviour difficulties, sense of coherence and adjustment at school: risk and protective factors. *European Journal of Special Needs Education, 24*(1), 59-73. doi: 10.1080/08856250802596758
- Erikson, E. H. (1968a). *Barndommen og samfunnet*. Chp V, VI, VII. Oslo: Gyldendal Norsk Forlag.
- Erikson, E. H. (1968b). *Identity. Youth and Crisis*. Chp 4. London: Faber & Faber.
- Eriksson, M., & Lindström, B. (2006). Antonovsky´s sense of coherence scale and relation with health: a systematic review. *Journal of Epidemiology and Community Health, 60*, 376-381. doi: 10.1136/jech.2005.041616
- Eriksson, M., & Lindström, B. (2005). Validity of Antonovsky´s sense of coherence scale: a systematic review. *Journal of Epidemiology and Community Health, 59*, 460-466. doi: 10.1136/jech.2003.018085
- Espnes, G. A., & Smedslund, G. (2009). *Helsepsykologi*. Oslo: Gyldendal Norsk Forlag AS.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4 ed.). London: SAGE Publications Ltd.
- Gana, K., & Garnier, S. (2000). Latente structure of the sense of coherence scale in a French sample. *Personality and Individual Differences, 31*, 1079-1090.
- Golsäter, M., Sidenvall, B., Lingfors, H., & Enskär, K. (2011). Adolescents´and school nurses´ perception of using a health and lifestyle tool in health dialogues. *Journal of Clinical Nursing, 20*, 2573-2583.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. New Jersey: Pearson Education Inc.
- Hellison, D. (2011). *Teaching personal and social responsibility through physical activity* (3 ed.). Champaign: Human Kinetics.

- Idan, O., & Margalit, M. (2011). The salutogenic orientation: Childrens sense of coherence and hopeful thinking in education of children and adolescents. *Teachings education periodical*, 4, 4-17.
- Kickbush, I. (2003). The Contribution of the World Health Organization to a New Public Health and Health Promotion. *Journal of Public Health*, 93(3), 383-388.
- Krause, C. (2011). Developing sense of coherence in educational context: Making progress in promoting mental health in children. *International Review of Psychiatry*, 23(6), 525-532. doi: 10.3109/09540261.2011.637907
- Lackaye, T. D., & Margalit, M. (2006). Comparisons of Achievement, Effort, and Self-Perceptions Among Students With Learning Disabilities and Their Peers From Different Achievement Groups. *Journal of learning disabilities*, 39(5), 432-446.
- Lindsström, B., & Eriksson, M. (2005). Continuing professional education. Salutogenesis. *Journal of Epidemiology and Community Health*, 59, p. 440-442. doi:10.1136/jech.2005.034777
- Lindsström, B., & Eriksson, M. (2010). A salutogenic Approach to Tackling Health Inequalities. In A. Morgan, E. Ziglio, & M. Davies (Eds.), *Health Assets in a Global Context: Theory, Methods, Action*. Retrieved 15.3.15 from: <http://www.springer.com/978-1-4419-5920-1>: Springer.
- Loeffler, E. (2013). The Family Nurse Partnership programme in Scotland: Improving outcomes for child, parents and society. In E. Loeffler, G. Power, T. Boviard, & F. Hine-Hughes (Eds.), *Coproduction of Health and Wellbeing in Scotland* (pp. 52-63). Retrieved 15.3.15 from: http://www.coproductionscotland.org.uk/files/8213/6189/6682/Coproduction_of_Health_and_Wellbeing_in_Scotland_2013.pdf - page=28: Governance International.
- Løndal, K. (2010). Children's Lived Experience and their Sense of Coherence: Bodily play in a Norwegian After-School Programme. *Journal of Child Care Practice*, 16(4), 391-407. doi: 10.1080/13575279.2010.498414
- Malterud, K. (2011). *Kvalitative metoder i medisinsk forskning*. Oslo: Universitetsforlaget.
- Malterud, K., & Hollnagel, H. (1998). Talking with woman about personal health resources in general practice. *Scandinavian Journal of Primary Health Care*, 16, 66-71.
- Margalit, M. (1994). *Loneliness among children with special needs: Theory, research, coping and intervention* (1 ed.). New York: Springer-Verlag.
- Margalit, M., AlYagon, M., & Neuberger, S. (1995). Mothers' Coherence, Family Climate and Preschool Children with Learning Disabilities: Risk and Resilience. *Thalamus*, 16(1), 28-31.
- Margalit, M., Mioduser, D., Al-Yagon, M., & Neuberger, S. (1997). Teachers' and peers' perception of children with learning disorders: consistency and change. *European Journal of Special Needs Education*, 12(3), 225-238.
- Marmot, M., Atkinson, T., Bell, J., Black, C., Broadfoot, P., Cumberlege, J., . . . Mulgan, G. (2010). Fair Society, Healthy Lives. The Marmot review. Strategic review of health inequalities in England.
- Moksnes, U. K., & Haugan, G. (2013). Validation of the Orientation to Life Questionnaire in Norwegian Adolescents, Construct Validity Across Samples. *Social Indicators research*, 114(3). doi: 10.1007/s11205-013-0536-z
- Mowder, B., Rubinson, F., & Yasik, A. E. (2009). Current Status and Future Directions. In B. Mowder, F. Rubinson, & A. E. Yasik (Eds.), *Evidence-Based Practice in Infant and Early Childhood Psychology*: John Wiley & Sons Inc.
- Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. *Advances in Health Science Education*, 15(5), 625-632. doi: 10.1007/s10459-010-9222y
- NOVA. (2010). Språk, stimulans og læringslyst - tidlig innsats og tiltak mot frafall i videregående opplæring gjennom hele oppveksten. En kunnskapsoversikt. In S. Wollscheid (Ed.), (Vol. 12). Oslo. Retrieved 23.3.15 from: <http://www.hioa.no/Om-HiOA/Senter-for-velferds-og-arbeidslivsforskning/NOVA/Publikasjoner/Rapporter/2010/Spraak-stimulans-og-laeringslyst-tidlig-innsats-og-tiltak-mot-frafall-i-videregaende-opplaering-gjennom-hele-oppveksten>: Norsk institutt for forskning om oppvekst, velferd og aldring.

- Naaldenberg, J., Tovi, H., Esker, F. v. d., & Vaandrager, L. (2011). Psychometric properties of the OLQ-13 scale to measure Sense of Coherence in a community-dwelling older population. *Health and Quality of Life Outcomes*, 9(37), 1-9. doi: 10.1186/1477-7525-9-37
- Ohl, C., & Swinton, S. M. (2010). Integrating social science into Long Term Ecological Research. In F. Müller, C. Baessler, H. Schubert, & S. Klotz (Eds.), *Long Term Ecological Research. Between theory and Application* (pp. 399-410). Kiel: Springer Verlag
- Pallant, J. (2013). *SPSS Survival manual* (5 ed.). Berkshire: Open University Press.
- Redman, C., Grove, M. J., & Kuby, L. (2004). Integrating Social Science into the Long Term Ecological Research (LTER)Network: Social Dimensions of Ecological Change and Ecological Dimensions of Social Change *Ecosystems*, 7(2), 161-171. doi: 10.1007/s10021-003-0215-z
- Ringdal, K. (2011). *Enhet og mangfold* (Vol. 2). Bergen: Fagbokforlaget Vigmostad & Bjørke AS.
- Sharabi, A., Levi, U., & Margalit, M. (2012). Children's loneliness, sense of coherence, family climate, and hope: Developmental risk and protective factors. *The journal of psychology*, 146(1-2), 61-83.
- St. Meld. 34. (2012-2013). Folkehelsemeldingen. God helse-felles ansvar. . Retrieved 20.10.13 from: <https://www.regjeringen.no/contentassets/7fe0d990020b4e0fb61f35e1e05c84fe/no/pdfs/stm201420150019000dddpdfs.pdf>
<https://www.regjeringen.no/nb/dokumentarkiv/stoltenberg-ii/hod/tema-og-redaksjonelt-innhold/redaksjonelle-artikler/2013/folkehelsemeldingen-god-helse---felles-a/id724323/>: Det Kongelige helse- og omsorgsdepartement.
- Tabachnick, B., & Fidell, L. S. (2014). *Using multivariate statistics* (6 ed.). England: Pearson Education Limited.
- The Scottish government. (2012). Getting it right for Children & Families. A guide to getting it right for every child. Retrieved 3.10.14 from: <http://www.scotland.gov.uk/Resource/0045/00458341.pdf>.
- Turner-Cobb, J. (2014). *Child health psychology. A Biopsychosocial perspective* (Vol. 1). London: SAGE publications Ltd.
- Watkins, M. W. (2005). Determining Parallell Analysis Criteria. *Journal of Modern Applied Statistical Methods*, 5(2), 344-346.
- Whitehead, D. (2006). The health-promoting schools: what role for nursing? *Journal of Clinical Nursing*, 15, 264-271.
- WHO. (1986). The Ottawa charter for health promotion. First international conference on health promotion. Retrieved 21.2.2015, from WHO <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html>

Appendices

Appendix 1

How I feel?

Children's Orientation Scale

Here are two examples:

I like chocolate

1	2	3	4
never	sometimes	often	always
If you <i>never</i> like chocolate, circle the			1.
If you <i>sometimes</i> like chocolate, circle the			2.
If you <i>often</i> like chocolate, circle the			3.
If you <i>always</i> like chocolate, circle the			4.

I like dogs

1	2	3	4
never	sometimes	often	always
If you <i>never</i> like dogs, circle the			1.
If you <i>sometimes</i> like dogs, circle the			2.
If you <i>often</i> like dogs, circle the			3.
If you <i>always</i> like dogs, circle the			4.

Please answer **all** questions. There are no right or wrong answers, just your feelings of how often it happens to you. Thank you for your help.

1 The things I do every day give me pleasure and are fun.

1	2	3	4
never	sometimes	often	always

2 When I need help, there is someone around to help me.

1	2	3	4
never	sometimes	often	always

3 I like to watch television.

1	2	3	4
never	sometimes	often	always

4 I am bored with the things that I do every day.

1	2	3	4
never	sometimes	often	always

5 I care about what goes on around me.

1	2	3	4
never	sometimes	often	always

6 Kids that I counted on, disappointed me.

1	2	3	4
never	sometimes	often	always

7 I feel that I'm not being treated fairly.

- | | 1
never | 2
sometimes | 3
often | 4
always |
|----|--|----------------|------------|-------------|
| 8 | I like ice cream. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 9 | Even when things are tough for me, I'm sure they will work out in the end. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 10 | I feel confused, mixed up. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 11 | When my friends ask me for something, I understand what they want. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 12 | I can solve my problems. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 13 | I'm interested in lots of things. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 14 | I have a hard time doing most of the things I have to do. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 15 | I like the doctor to give me a shot. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 16 | When someone gets mad at me, I understand why. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 17 | I feel sorry for myself. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 18 | I feel that I don't know what to do in class. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |
| 19 | When I want something, I'm sure I'll get it. | | | |
| | 1
never | 2
sometimes | 3
often | 4
always |

HOW I FEEL

Children's Orientation Scale

This is an adaptation of the Antonovsky Orientation to Life (Sense of Coherence) scale [See Antonovsky, Aaron (1987) *Unraveling the Mystery of Health*. San Francisco: Jossey-Bass]. In line with the Sense of Coherence construct and the adults' scale, a children's version (CSOC) has been developed, field tested and revised several times in the Special Education Laboratory, Constantiner School of Education, Tel Aviv University.

The present version of the scale has been revised and field tested with different Israeli samples. Currently it is made available to colleagues for use in English or translations into several other languages. If you are interested, please feel free to use it in your research plans. Before providing the scale and related research, I would like to acknowledge the extended support and help of Aaron and Helen Antonovsky from Jerusalem. This help was repeatedly needed and generously provided through all the stages of the scale development. At a later stage, Melvin and Dorothy Semmel from University of California in Santa Barbara, USA, provided us with valuable suggestions to the English version of the scale.

The Children Sense of Coherence Scale (CSOC) is intended for children aged 5-10 years old. Conceptually, the items were derived from SOC-29 and the three components of the SOC. The scale includes 16 items describing the children's feeling of confidence in their world, as expressed in their Sense of *Comprehensibility*: understanding of their environment (i.e., "I feel that I don't know what to do in class" - items 10, 11, 12, 16, 18), Sense of *Manageability*: feelings of control, and confidence that when help will be needed - it will be available (i.e., "when I want something I'm sure I'll get it" - items 2, 6, 7, 9, 14, 17, 19), and their Sense of *Meaningfulness*: motivation and interest in investing efforts for the different tasks' performance (i.e., "I'm interested in lots of things" - items 1, 4, 5, 13).

Similarly to the SOC scoring procedures, a high score = a strong CSOC. Therefore, the answers on the following items should be reversed: 4, 6, 7, 10, 14, 17, 18 (1=4; 2=3; 3=2; 4=1), and the 16 items will be added to provide a global score. These scores will be within the range of 16 to 64. Items 3, 8 and 15 are *distracters*. Please make sure that the distracters make sense in your culture. If not, feel free to substitute them with distracters that will be understandable for children in your culture, and please report your ideas to us.

Several additional versions has been experimented: such as a version for preschool children, with a replicated set of context related items, or for junior high school students, omitting the distracter items.

Example "I'm interested in lots of things". "I'm interested in lots of things in my class" (for a school based research) (or "at home" - for a family based research).

Administration

Group administration may be considered only for students who can read at or above the second-grade level. The teacher (or the experimenter) has to read the first example to the entire group, and ask: "who *never* and *almost never* likes chocolate - raise your hands"; "Please circle the 1." "Who *always* and *almost always* likes chocolate - raise your hands"; "Please circle the 4." "Who *Sometimes* likes chocolate raise your hands"; "Please circle the 2." "Who *often* likes chocolate - raise your hands"; "Please circle the 3."

He/she will also read aloud the second example, asking the children to raise their hands, and circle a number. Only when the teacher is sure the children have understood the procedure, he/she may continue reading the text.

For younger children and children who cannot read, individual administration is recommended. The younger age group may need a true/false scale. These possibilities are being explored, and the results will be reported at a later stage. As a general principle, users of instruments such as CSOC should have an understanding of the basic principles and limitations of educational and psychological questionnaires. They should be aware of the limitations of screening procedures based on rating scales, and endorse standards for the ethical use of children's questionnaires.

Research examples utilizing the CSOC

Margalit, M. (2010). *Lonely children and adolescents: Self perceptions, social exclusion and Hope*. New York: Springer.

Margalit, M., & Efrati, M., (1996). Loneliness, coherence and companionship among children with learning disorders. *Educational Psychology, 16*(1), 69-79.

Margalit, M. (1998). Sense of Coherence and loneliness experience among preschool children with learning disabilities. *Journal of Learning Disabilities, 31*(2), 173-180.

Lackaye, T., & Margalit, M. (2006). Comparisons of achievement, effort and self-perceptions among students with learning disabilities and their peers from different achievement groups. *Journal of Learning Disabilities, 39*(5), 432-446.

Efrati-Virtzer, M., & Margalit, M. (2009). Students' behavior difficulties, sense of coherence and adjustment at school: risk and protective factors. *European Journal of Special Needs Education, 24*(1), 59-73.

Sharabi, A., Levi, U., & Margalit, M. (2011). Children's loneliness, sense of coherence, family climate and hope: Developmental risk and protective factors. *The Journal of Psychology, 146*-1-2, 61-83

For more information please contact:

Malka Margalit, Ph.D, Professor (Emeritus), Tel Aviv University; Head, School of Behavior Sciences, Peres Academic Center. Malka@post.tau.ac.il

Appendix 2

HVORDAN HAR JEG DET?

ORIENTERINGSSKALA FOR BARN

LES DETTE FØR DU STARTER!	Skjemaet skal leses av en maskin. Vennligst fyll ut skjemaet slik: <ul style="list-style-type: none">• <i>Bruk svart/blå kulepenn eller en god blyant. Ikke skriv utenfor feltene.</i>• Kryss av slik: <input checked="" type="checkbox"/>• <i>Du kan stryke feil kryss ved å fylle <u>hele</u> feltet med svart eller blått.</i>• <i>Sett bare ett kryss på hvert spørsmål.</i>
--	--

Her er et par eksempler som viser hvordan du svarer:

Eksempel 1: La oss si at du *aldri* liker sjokolade. Da krysser du av i boksen under der det står «Aldri», slik:

	Aldri 1	Noen ganger 2	Ofte 3	Alltid 4
Jeg liker sjokolade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eksempel 2: La oss si at du *ofte* (men ikke alltid) liker hunder. Da krysser du av under «Ofte», slik:

	Aldri 1	Noen ganger 2	Ofte 3	Alltid 4
Jeg liker hunder	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Vær så snill å svare på alle spørsmålene. Er det spørsmål du ikke *vil* eller *får til* å svare på, kan du hoppe til neste spørsmål. Det er ingen svar som er «rett» eller «feil», bare fortell hvor ofte ting hender ved å krysse av for det som passer best for deg. *Takk for hjelpen!*

Da starter vi!

Ditt kjønn: ⇨	Jente..... <input type="checkbox"/> 1	Din alder: ⇨	8 år <input type="checkbox"/> 8	Klasse-trinn: ⇨	3. trinn.. <input type="checkbox"/> 3
	Gutt..... <input type="checkbox"/> 2		9 år <input type="checkbox"/> 9		4. trinn.. <input type="checkbox"/> 4
			10 år .. <input type="checkbox"/> 10		5. trinn.. <input type="checkbox"/> 5

	Aldri 1	Noen ganger 2	Ofte 3	Alltid 4
1. Det jeg gjør hver dag er morsomt, og det gjør meg glad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Når jeg trenger hjelp, er det noen i nærheten som kan hjelpe meg	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
3. Jeg liker å se på TV	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
4. Jeg kjeder meg med det jeg holder på med hver dag.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
5. Jeg er interessert i det som skjer rundt meg	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4



- | | Aldri
1 | Noen
ganger
2 | Ofte
3 | Alltid
4 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. Barn jeg stolte på, har skuffet meg | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Jeg blir behandlet urettferdig | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Jeg liker is | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Når noe blir vanskelig for meg, er jeg sikker på at det ordner seg til slutt..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Jeg føler meg forvirret | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Når vennene mine spør meg om noe, skjønner jeg hva de mener | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Jeg kan løse problemene mine | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Jeg er interessert i mye forskjellig..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Jeg strever med mesteparten av det jeg må gjøre..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Jeg vil at helsesøster skal sette sprøyte på meg | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Når noen blir sint på meg, skjønner jeg hvorfor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Jeg synes synd på meg selv | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Jeg vet ikke hva jeg skal gjøre i skoletimene | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Når jeg ønsker meg noe, er jeg sikker på at jeg vil få det..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Spørreskjemaet for barn «Children's Orientation Scale» er utviklet av Malka Margalit, Tel Aviv University. Oversatt til norsk av Wenche Similä, moderert av Audhild Løhre og Borgunn Ytterhus, Norges teknisk-naturvitenskapelige universitet (NTNU). Spørsmål 3, 8 og 15 inngår ikke i Sense of coherence, men følger med som tilleggsspørsmål.

Hvordan har jeg det? **Orienteringsskala for barn**

Orienteringsskala for barn er en norsk oversettelse av The Children's Orientation scale (C-SOC). Skalaen er beregnet på barn i alderen 5-10 år. Utsagnene er avledet fra de tre komponentene; forståelighet, meningsfullhet og mestring i Sense of Coherence (SOC) og bygger på SOC-29. Skalaen omfatter 16 item som beskriver barns opplevelse av tillit i sin livsverden, som uttrykt i deres opplevelse av *Forståelighet*: Forståelighet av deres omgivelser (for eksempel "Jeg vet ikke hva jeg skal gjøre i skoletimene" – item 10, 11, 12, 16, 18), opplevelse av *Mestring*: opplevelse av kontroll og tillit til at når det er nødvendig å få hjelp, er den tilgjengelig (for eksempel "Når jeg ønsker meg noe, er jeg sikker på at jeg vil få det" – item 2,6,7,9,14,17,19), og opplevelse av *Meningsfullhet*: motivasjon og interesse for å investere innsats i ulike oppgaver (for eksempel "Jeg er interessert i mye forskjellig" – item 1, 4, 5, 13). Som i prosedyren for skåring av SOC, vil en høy score tilsvare en høy CSOC. Derfor må svarene i følgende item reverseres: 4, 6, 7, 10, 14, 17, 18 (1=4; 2=3; 3=2; 4=1) og de 16 item legges sammen for å gi en global score. Scorene vil befinne seg fra 16 til 64. Item 3, 8 og 15 er tilleggsspørsmål.

Administrering av spørreskjemaet

Gruppeadministrering kan vurderes bare for elever som kan lese godt. Læreren (eller den som gjør undersøkelsen) må lese opp første eksempel for hele gruppen, og spørre: "De som aldri liker sjokolade – løft hånda i været"; "Dere krysser av i rute 1". "De som alltid liker sjokolade – løft hånda i været"; "Dere krysser av i rute 4". "De som liker sjokolade noen ganger – løft hånda i været"; "Dere krysser av i rute 2". "De som ofte liker sjokolade – løft hånda i været"; "Dere krysser av i rute 3". Det andre eksempelet leses også høyt på samme måte som beskrevet for det første eksempelet. Når den som administrerer spørreskjemaet er sikker på at elevene har forstått prosedyren, kan spørreskjemaet leses opp. For yngre barn og barn som ikke kan lese, er det nødvendig med individuell administrering. For de yngste elevene kan smilefjessvar prøves ved at den som utfører undersøkelsen holder opp smilefjesene og lar elevene peke på det som er riktig for seg. Det er viktig for den som gjør en undersøkelse med spørreskjemaet å ha en forståelse for prinsipper og begrensninger som finnes i pedagogiske og psykologiske spørreskjema. Det er også viktig å være klar over begrensninger i screening prosedyrer basert på *skala for rangering*, og følge standarder for etisk bruk av spørreskjema til barn.

Appendix 3

Region: REK midt	Saksbehandler: Tone Natland Fagerhaug	Telefon: 73597506	Vår dato: 07.07.2014	Vår referanse: 2014/969/REK midt
			Deres dato: 13.05.2014	Deres referanse:

Vår referanse må oppgis ved alle henvendelser

Bengt Bjornson Lindstrom
NTNU

2014/969 Teoretisk bakgrunn for og validering av Children's Life Orientation Scale

Forskningsansvarlig: NTNU

Prosjektleder: Bengt Bjornson Lindstrom

Vi viser til søknad om forhåndsgodkjenning av ovennevnte forskningsprosjekt. Søknaden ble behandlet av Regional komité for medisinsk og helsefaglig forskningsetikk (REK midt) i møtet 13.06.2014. Vurderingen er gjort med hjemmel i helseforskningsloven (hfl.) § 10, jf. forskningsetikklovens § 4.

Prosjektomtale

Margalit's Children's Orientation Scale er en tilpasning av Aron Antonovsky's Orietation to Life scale (SOC) til barn i alderen 5-10 år. Prosjektet er en studie av teoretisk bakgrunn for utviklingen av spørreskjemaet og en validering av spørreskjemaet til norske barn i alder 5-10 år. Valideringen sker genom oversettelse fra engelsk til norsk og oversettelse tilbake til engelsk. Arbeidet sker i samarbeide med Institutt for Sosialt arbeid og Helsevitenskap NTNU og HIST. Kontakt med skoler i Sør Trøndelag og ev Nord Trøndelag for nformanter å få gjennomført en spørreundersøkelse med bruk av den endelige norske oversettelsen. I tillegg til spørreskjemaet vil det følge med spørsmål om alder, kjønn og klassetrinn. Svarene vil bli analysert ved hjelp av faktoranalyse I SPSS. Oppgaven vil bli presentert i form av to artikler. En artikkel med den teoretiske bakgrunnen og en artikkel med valideringen av spørreskjemaet.

Vurdering

Komiteen har vurdert søknad, forskningsprotokoll, målsetting og plan for gjennomføring. Studien er me todologisk interessant fordi studien kan ha betydning innen psykologisk forskning. Komiteen har enkelte mindre bemerkninger til studiens nåværende utforming.

Komiteen framhever at foreldrene må få se spørreskjemaet som er oversatt til norsk, og at det sendes til foreldrene sammen med informasjonsskrivet om studien. Slik kan foreldrene være informert om hvilke spørsmål som inngår i spørreskjemaet. I tillegg påpeker komiteen at det må innhentes aktivt samtykke fra foreldrene. Det er ikke tilstrekkelig at foreldrene gis mulighet til å reservere seg, slik det skisseres i søknadsskjemaet punkt 3. Informasjonsskrivet må inneholde en svarslipp slik at de som ønsker å delta kan fylle ut svarslippen og sende til forskeren.

Under forutsetning av at vilkårene skissert under oppfylles, framstår prosjektet som forsvarlig, og hensynet til deltakernes velferd og integritet er ivaretatt.

Vilkår for godkjenningen

1. Det må innhentes skriftlig, aktivt samtykke fra foreldrene.

2. Den norske versjonen av skjemaet som skal brukes i studien må gis til foreldrene sammen med informasjonsskrivet. På den måten får foreldrene anledning til å se spørsmålene før de i samråd med barnet bestemmer seg for om barnet kan delta i studien eller ikke.
3. Komiteen ber om at det i informasjonsskrivet opplyses om at studien er godkjent av Regional komité for medisinsk og helsefaglig forskningsetikk Midt-Norge. Skrivet må også dateres.
4. Den norske versjonen av skjemaet skal sendes komiteen til orientering. Vennligst benytt e-postadressen post@helseforskning.etikkom.no og "REK midt 2014/969" i emnefeltet. Det reviderte informasjonsskrivet skal sendes til samme adresse.
5. Godkjenningen er gitt under forutsetning av at prosjektet gjennomføres slik det er beskrevet i søknaden og protokollen, og etter de bestemmelser som følger av helseforskningsloven med forskrifter.
6. Forskningsprosjektets data skal oppbevares forsvarlig, se personopplysningsforskriften kapittel 2, og Helsedirektoratets veileder for «Personvern og informasjonssikkerhet i forskningsprosjekter innenfor helse- og omsorgssektoren». Av kontrollhensyn skal prosjektdata oppbevares i 5 år etter prosjektslutt. Prosjektslutt er angitt til 01.08.2015. Data skal derfor oppbevares til 01.08.2020, for deretter å slettes eller anonymiseres.
7. Komiteen forutsetter at ingen personopplysninger kan framkomme i personidentifiserbar form ved publisering eller annen offentliggjøring.
8. Prosjektleder skal sende sluttmelding til REK midt på eget skjema senest 01.02.2016, jf. hfl. 12.
9. Prosjektleder skal sende søknad om prosjektendring til REK midt dersom det skal gjøres vesentlige endringer i forhold til de opplysninger som er gitt i søknaden, jf. hfl. § 11.

Vedtak

Regional komité for medisinsk og helsefaglig forskningsetikk Midt-Norge godkjenner prosjektet med de vilkår som er gitt.

Klageadgang

Du kan klage på komiteens vedtak, jf. forvaltningslovens § 28 flg. Klagen sendes til REK midt. Klagefristen er tre uker fra du mottar dette brevet. Dersom vedtaket opprettholdes av REK midt, sendes klagen videre til Den nasjonale forskningsetiske komité for medisin og helsefag for endelig vurdering.

Med vennlig hilsen

Sven Erik Gisvold
Dr.med.
Leder, REK midt

Tone Natland Fagerhaug
Sekretariatsleder

Kopi til:riina.kiik@svt.ntnu.no

Appendix 4



Senter for
helsefremmende forskning



Wenche Similä
Hoeggvegen 16 A
7036 TRONDHEIM
mail: wenche.simila@hotmail.com
24.9.2014

Rektor v/.....skole
7000 TRONDHEIM

FORESPØRSEL OM MASTERSTUDIE BLANT ELEVER 8-10 ÅR VED SKOLE

I forbindelse med min mastergradsoppgave ber jeg om å få invitere elever ved Skole til en spørreundersøkelse. Spørreundersøkelsen er et ledd i utviklingen av et verktøy for helsefremmende arbeid blant barn og unge i Norge, og gjøres i samarbeid med Senter for helsefremmende forskning ved HIST-NTNU. Undersøkelsen er planlagt utført gjennom utfylling av spørreskjema i en skoletime med klasselærer og undertegnede tilstede. I forkant av undersøkelsen vil elevene få med seg spørreskjemaet sammen med et informasjonsskriv og samtykkeskjema hjem, for godkjenning av foresatte. Svarslipp bringes tilbake til klasselærer og hentes av undertegnede. Videre planlegges undersøkelsen utført på et tidspunkt som passer for de som ønsker å delta, ut fra tid til disposisjon godkjent av skolen. Studien er godkjent av Regional komité for medisinsk og helsefaglig forskningsetikk, Midt-Norge 7.7.2014.

Vedlegg: 1. Infoskriv med svarslipp.
2. Spørreskjemaet som skal brukes i undersøkelsen.

Mvh
Wenche Similä

Mastergradsstudent v/ NTNU
Institutt for sosialt arbeid og helsevitenskap



Senter for
helsefremmende forskning

NTNU
Kunnskap for en bedre verden

HST
Kunnskapen
du trenger

Til elev og foreldre/foresatte

Forespørsel om deltakelse i forskningsprosjektet

”Teoretisk bakgrunn for og validering av Children’s Orientation Scale, for norske barn i alderen 8-10 år”

Studien er godkjent av Regional komité for medisinsk og helsefaglig forskningsetikk Midt-Norge, 7.7.2014.

Bakgrunn og hensikt

Dette er et spørsmål til deg om å delta i en forskningsstudie for å bidra til utviklingen av en norsk utgave av spørreskjemaet Children’s Orientation Scale. Spørreskjemaet er beregnet på barn fra 5-10 år og brukes for å få et bilde av barns opplevelse av mestring, meningsfullhet og forståelse av sine omgivelser. De besvarte spørreskjemaene blir brukt i en statistisk analyse for å finne ut om spørreskjemaet er egnet til å beskrive barns opplevelse av mestring, meningsfullhet og forståelse av sine omgivelser. Alle innsamlede data behandles anonymt og slettes etter endt studie. Studien gjøres som en del av en mastergradsoppgave ved Institutt for sosialt arbeid og helsevitenskap ved NTNU. Resultatene fra studien kan bli publisert i et fagtidsskrift etter endt studie.

Hva innebærer studien?

I denne studien vil vi invitere barn fra 8-10 år til å delta. Studien innebærer at elever fyller ut en norsk papirutgave av spørreskjemaet Children’s Orientation Scale i en skoletime, med klasselærer og mastergradsstudent tilstede. Det kan bli nødvendig at klasselærer eller mastergradsstudent leser opp spørsmålene høyt i klassen. På forhånd får de forklart hva svaralternativene er og hva de betyr. Elevene setter så ring rundt det

svaret de mener er riktig for seg. Det vil ikke bli spurt om navn eller fødselsdato på eleven, men de blir bedt om å fylle inn alder, kjønn og klasstrinn.

Mulige fordeler og ulemper

Lærer og mastergradsstudent vil være behjelpelig underveis med forklaringer dersom eleven ikke forstår spørsmålene eller ikke vet hvordan de skal svare. Dette kan være aktuelt for de elevene som ennå ikke har utviklet gode nok leseferdigheter til å besvare spørreskjemaet på egen hånd.

Hva skjer med informasjonen om deg?

Informasjonen som registreres om deg skal kun brukes slik som beskrevet i hensikten med studien. Alle opplysningene vil bli behandlet uten navn og fødselsnummer eller andre direkte gjenkjennende opplysninger. En kode knytter deg til dine opplysninger gjennom en navneliste, for å ha muligheten til å finne informasjonen om deg dersom du ønsker å trekke deg fra studien etter utfylling av spørreskjema. Innsamlede data fra studien vil bli oppbevart i fem år etter endt studie, av kontrollhensyn, og de vil deretter slettes. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres

Frivillig deltakelse

Det er frivillig å delta i studien. Du kan når som helst og uten å oppgi noen grunn trekke ditt samtykke til å delta i studien. Dette vil ikke få konsekvenser for din videre behandling. Dersom du ønsker å delta, undertegner du samtykkeerklæringen på siste side. Om du sier ja til å delta, kan du senere trekke tilbake ditt samtykke uten at det påvirker din øvrige behandling. Dersom du senere ønsker å trekke deg eller har spørsmål til studien, kan du kontakte Mastergradsstudent Wenche Similä på **tlf 99401830**.

- Kriterier for deltagelse: Skoleelev i alderen 8 -10 år
- I forkant av spørreundersøkelsen er det gjort en teoretisk studie av bakgrunnen for spørreskjemaet. Spørreskjemaet og utfyllingen av dette inngår i andre del av studien og skal bidra til å finne ut om spørreskjemaet egner seg i forhold til hensikten, for norske barn i alderen 8-10 år.
- Utfylling av spørreskjema gjøres i en skoletime i høsthalvåret 2014.

Personvern

Opplysninger som registreres om deg er hvordan du generelt opplever mestring, meningsfullhet og forståelse av dine omgivelser.

Veileder for studien, professor Bengt Lindström ved NTNU, vil ha innsyn i svarene og resultatene fra spørreundersøkelsen. Resultatene fra undersøkelsen blir lagt fram ved presentasjon av mastergradsoppgaven under eksamen ved Institutt for sosialt arbeid og helsevitenskap ved NTNU.

Rett til innsyn og sletting av opplysninger om deg

Hvis du sier ja til å delta i studien, har du rett til å få innsyn i hvilke opplysninger som er registrert om deg. Du har videre rett til å få korrigert eventuelle feil i de opplysningene

vi har registrert. Dersom du trekker deg fra studien, kan du kreve å få slettet innsamlede opplysninger, med mindre opplysningene allerede er inngått i analyser eller brukt i vitenskapelige publikasjoner.

NTNU, 17.10.2014

Samtykke til deltakelse i studien

Leveres til kontaktlærer innen.....

”Teoretisk bakgrunn for og validering av Children’s Orientation Scale for norske barn i alderen 5-10 år”

Jeg er villig til å delta i studien

(Signert av prosjektdeltaker (elev), dato)

Stedfortredende samtykke når berettiget, enten i tillegg til personen selv eller istedenfor

(Signert av forelder/foresatt, dato)

Jeg bekrefter å ha gitt informasjon om studien

(Signert, rolle i studien, dato)