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Reports from a Pilot Study, with an Examination of the Structural Validity of the new School Resilience Scale for Adults

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Graduate thesis in Psychology
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Forord

Endelig kan jeg skrive dette forordet, vel vitende om at hovedoppgaven snart kan leveres. Jeg velger å skrive på mitt morsmål, siden dette er den mer personlige delen av et ellers formelt dokument. Det har vært en lang og tidvis kronglete prosess. I juni 2019 fikk veilederne mine ved The Resilience Centre ved NTNU vite at de, og dermed jeg, ble nektet tilgang til baseline-dataene fra UPRIGHT-prosjektet. Disse inneholdt omfattende data fra tusenvis av elever, lærere og foreldre i fem europeiske land, hvor the School Resilience Scale var et av målene som ble brukt. Det var skuffende å miste de spennende mulighetene som lå i det materialet, men jeg er takknemlig for at Odin og Roxanna da kunne tilby meg det datamaterialet som denne oppgaven er basert på.

Jeg har utvilsomt lært mye under denne prosessen. Jeg har lest hundrevis av sider om hvordan skolen kan påvirke barn og ungdoms mentale helse og utvikling, et tema jeg har blitt enda mer interessert i enn jeg var på forhånd. I tillegg har jeg lært mer om prosessen rundt utvikling av spørreskjema, og om statistikk, særlig bekreftende faktoranalyses. Jeg har blitt bedre til å skrive konsist og «komme til poenget». Med all journalskrivingen som arbeid innen helsesektoren medfører er dette nyttig lærdom. På det mer personlige plan har jeg måttet håndtere min egen tendens til å prokrastinere når fristene er fjerne og oppgavene store og vage. Nå ser jeg fram til et yrkesliv der arbeidsoppgavene er mange flere, men som regel mer klart avgrensede.

Det er flere jeg vil takke. Veilederne mine, Odin Hjemdal og Roxanna Morote Rios, har i perioder har vært svært travle, men har lost meg godt og trygt gjennom prosessen, helt til siste slutt. Takk til Ingrid Myhr Pettersen for nyttige kommentarer som har gjort oppgaven bedre. Stor takk til min kjæreste Inga. Du har holdt ut mye prat om oppgaven, ofte i form av frustrasjon, og har vært en klippe for meg. Sist, men ikke minst, vil jeg takke Einar, Jakob og Jørgen. Dere sitter på datasalen med meg når jeg skriver dette forordet, og har vært ved min side gjennom alt for mange timer med oppgaveskriving, og noen færre med bordtennisspilling. Det hadde ikke vært det samme uten dere. Jeg gjerne få si at jeg er litt fornøyd med meg selv også, som har jobbet meg gjennom hovedoppgaven, og dermed hele profesjonsstudiet i psykologi. Mye innsats og slit ligger bak, men det har det vært verdt til slutt.

Trondheim, 12. juni 2020.

Abstract

Schools play a pivotal role in the development of mental health and well-being in children and adolescents. In fact, a vast amount of research supports this notion, showing clear relations between characteristics of schools and mental health related outcomes for students. *Resilience* is an important concept in mental health research, related to the factors and processes that promote positive outcomes in individuals and communities. The novel concept of *school resilience* is concerned with the collective resilience of the school community. *The School Resilience Scale* (*SRS*) is questionnaire recently developed at the Resilience Centre of the Norwegian University of Science of Technology, Trondheim. The SRS consists of five proposed factors: positive relations, belonging, inclusion, participation, and mental health. Research supporting the relevance of the factors is presented in the literature review. The principal aim of this thesis is to contribute to the validation of the School Resilience Scale for adults (*SRS-A*), by examining if the SRS-A in its current form show acceptable psychometric properties, in a convenience sample (*N* = 342) of teachers and parents from four European countries. This will in turn inform whether the scale as it is can be used in research on school resilience. A confirmatory factor analysis has been conducted in SPSS AMOS, testing the adequacy of the proposed five correlated-factors model of the SRS-A. The confirmatory factor analysis supported the adequacy of the current SRS-A model. In addition, the internal consistencies of the scale and each proposed factor have been tested with reliability analyses. The internal consistencies of the entire scale and the five factors ranged from acceptable to high. Finally, preliminary effects of demographic variables have been explored through independent samples t-tests and correlation analyses. Being a teacher and increasing age was associated with higher scores on the SRS-A and some of the five factors. The results from this study show that the SRS-A in its current five correlated-factors structure is suitable for use in further validation studies. Future directions in research on school resilience are discussed.

Keywords: Resilience, School Resilience, The School Resilience Scale for Adults, Confirmatory Factor Analysis.

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Literature Review

School plays an important role in the development of mental health in children and youths. A multitude of public and private initiatives have been carried out with the aim of using school as an arena for mental health promotion (Weare & Nind, 2011). In Norway, for instance, mental health promotion in schools is a pronounced part of the new national curricula that is implemented from 2020 (Norwegian Ministry of Education and Research, 2015). The mental health and wellbeing of children and adolescents is likely to be affected by the effects school have on known risk and protective factors. These factors can be stressful life events (Kim, Conger, Elder, & Lorentz, 2003), development of self-esteem (Landazabal, Pérez, & Mozaz, 2008), and development of social competence (Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). Indeed, several studies have found associations between school characteristics and child and adolescent mental health (e.g., Kuperminc, Leadbeater, & Blatt, 2001; Bond et al., 2007; Weare & Nind, 2011).

Resilience has become a conceptual umbrella term for factors and processes that are involved in the development of a positive mental health. Measures of individual resilience have been shown to predict positive mental health in individuals (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). Intents has also been made to develop measures of general collective resilience (Magis, 2010; Leykin, Lahad, Cohen, Goldberg, & Aharonson-Daniel, 2013; Lyons, Fletcher, & Bariola, 2016). The school is an important social arena for children and adolescents. Yet, research on school factors that promote adolescents´ wellbeing is still in its initial phase. Measuring resilience at a school level is in accordance with the holistic approach many school interventions seek (Weare & Nind 2011). The absence of systematic recognition of shared collective characteristics of the school community that promote or preclude the development of positive mental health means a gap in the ways of evaluating the functioning of schools.

In elucidation of that gap, this thesis aims to contribute to the validation of the *School Resilience Scale for adults* (*SRS-A*). More specifically, the main objectives are to examine the factor structure and internal consistency of the SRS-A. In a classical paper, Jane Loevinger (1957) describes the process of scale construction as consisting of the substantive validity phase, where initial items are selected based on theoretical definitions of the relevant constructs, the structural validity phase, where the structure of the scale is established and item selection is finished, and the external validity phase, where the scale is validated towards

other test and non-test markers of the construct in question. The first and current version of the SRS-A was recently proposed by researchers at the Resilience Centre of the Norwegian University of Science of Technology, Trondheim. The SRS-A consists of five factors: positive relations, belonging, inclusion, participation, and mental health. The questionnaire was developed during the co-creation phase of the UPRIGHT project (Universal Preventive Resilience Intervention Globally Implemented in schools to improve and promote mental Health for Teenagers). The UPRIGHT consortium is developing an intervention aiming to "promote mental well-being and prevent mental disorders in youth by enhancing resilience capacities, through a whole school approach addressing early adolescents, their families and the school community, to create a real mental well-being culture at schools" (Las Hayas et al., 2019, p. 2). The project is funded by the European Union´s Horizon 2020 programme. The SRS is one of the measures which will be used to measure the effectiveness of the UPRIGHT intervention. This thesis is drawn upon data from a pilot study which was conducted during the co-creation phase of the UPRIGHT project. Following Loevinger´s (1957) model, it is a part of the structural validation of the SRS-A.

Resilience

Resilience involve positive adaption for an individual or a community, often despite the presence of adversity or risk that may jeopardize this positive adaptation in some way (Fletcher & Sarkar, 2013). Positive adaptation can imply the absence of presumably negative outcomes like psychopathology, adolescent substance abuse, and school dropout, as well as the presence of presumably positive outcomes like mental well-being and competence (Wright, Masten, & Narayan, 2013). Adversity involves risk or vulnerability factors that can increase the probability of undesirable outcomes for an individual or a community (Wright et al., 2013). Within a protective model of resilience, resilience factors are considered to have a positive effect *only* at high levels of adversity or risk, while a compensatory model imply that resilience is considered to bring positive effects regardless of the level of adversity (Fergus & Zimmerman, 2005). Davis, Luecken, & Lemery-Chalfant (2009) note that early research on resilience has been focusing on relatively rare and extreme types of adversity that communities and individuals might face, like abuse, maltreatment, natural disasters and war. They argue that resilience processes are relevant also concerning everyday stressors and more common negative life-experiences. Modest disruptions, or even apparently positive events, like getting a new job or getting married, might also call for resilience for positive adaptation (Davis et al., 2009; Fletcher & Sarkar, 2013).

Resilience can be examined on several levels, ranging from the individual (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003; Hjemdal et al., 2006a), through communities or social groups (Leykin et al., 2013; Lyons et al., 2016), and even by looking at aspects of different cultures (Gallo, Penedo, Espinosa de los Monteros, & Arguelles, 2009; Keyes, 2009). Shaw, McLean, Taylor, Swartout, & Querna (2016) consider psychological studies of resilience to over-emphasize resilience as an intraindividual process at the expense of factors and processes on other levels, like social systems. In this way the systems around the individual, which have been instrumental in forming his or her "experiences, history, and opportunities from birth" (Shaw et al., 2016, p. 36), are under-estimated. They further emphasize how the individual often is the unit of analysis, even when variables outside the individual, like social support, are considered. In the present study, school resilience is defined at a collective level, with the school community being the unit evaluated (not the behavior of individuals). In this thesis, a community is defined as "a functional unit of production and exchange, the activity space in which a range of social functions are concentrated" (Chaskin, 2008, p. 67). Important stakeholders in the school community are students and their families, and school staff. All stakeholders in the school community might interact with each other and with the wider social, economic, and political contexts to create resilient schools.

School Resilience

School resilience, as proposed here by the Resilience Centre at the Norwegian University of Science and Technology, is a recently coined collective resource of the school community. Resilient schools are thought to support positive adaptation for their stakeholders, particularly students. Positive adaptation can in this context involve outcomes like low dropout rates from school, and good mental health in students. As school resilience is a novel concept, future empirical research is needed to investigate how school resilience operate at different levels of adversity or risk, and how this will affect school outcomes or adolescents´ wellbeing. That is, whether a protective or compensatory resilience model is most descriptive for school resilience. Research underscore the importance of not looking at school achievement as a comprehensive measure of children or youth development and adaptation. Wang et al. (2015) found in a study of Finnish high school students that a decrease in emotional engagement from 9th to 11th grade predicted an increase in depression symptoms but did not significantly affect school achievement in the form of grade point average. Bond et al. (2007) point to a certain group of students who have grades above average, while at the

same suffering of suboptimal mental health. These students are socially disconnected, and end up with an unhealthy, neurotic investment in achievement at school. Studies like these demonstrate the need for valid measures of mental health promoting aspects of the school community, like school resilience.

The School Resilience Scale

The items and factors of School Resilience Scale (SRS) were suggested through a rational-theoretical approach (Simms, 2008). Researchers from the Resilience Centre at the Norwegian University of Science of Technology wrote items and proposed factors based on prior knowledge and thorough reviews of the literature about resilience and collective protective factors. In the SRS, the respondents are asked to evaluate the school as a community, in contrast to other school measures where respondents are asked about their experience or perception of how the school environment affect themselves as individuals (e.g., Goodenow, 1993; McNeely, Nonnemaker, & Blum, 2002). The proposed SRS measures five factors: positive relations, belonging, inclusion, participation, and mental health. Two parallel versions of the SRS are developed, one for students and one for adults (teachers and parents). In this thesis, the structural validity of the adult version (SRS-A) will be examined. In the following pages, the contents of each SRS factor will be presented, together with empirical and theoretical research that support their relevance (the SRS-A items are protected by copyright and can thus not be presented here). The literature review and discussion in this thesis will be focused on processes outcomes for adolescents. This is the age group towards which the UPRIGHT project is directed.

The Positive Relations Factor

The positive relations factor of the SRS-A concerns the quality of the relations between the people of the school community, including aspects like friendship and respect. This factor is collective to the core, as it taps the mutual relationships between all school community members. The positive relations factor contains items like "*Teachers and school staff promote friendship, acceptance and understanding among students*".

Support for the relevance of the positive relations factor can be found in research on *School connectedness* (*SC*). SC can be defined as "the extent to which students feel personally accepted, respected, included, cared for, close to, and supported by others in the school environment" (Joyce & Early, 2014, p. 101). With SC, the quality of the relationships at school is not mentioned explicitly as the source of these positive feelings. Aspects of SC can

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be relevant for other SRS factors, like belonging and inclusion. Bond et al. (2007) found SC at year 8 of school predicting lower levels of depressive symptoms and substance use at year 10, as well as higher levels of school completion at year 12. Marraccini & Brier (2017) found in a meta-analysis that SC seemed to be significantly negatively associated with suicidal thoughts and behaviour in students from grades 6 to 12. Other studies have also found SC predicting lower levels of mental problems in adolescents (Shochet, Smith, Furlong, & Homel, 2011; Millings, Buck, Montgomery, Spears, & Stallard, 2012; Lester, Waters, & Cross, 2013; Joyce & Early, 2014).

One possible mechanism through which positive relations at school promote students' mental health and well-being is by being a source of *social support*. Social support can be defined as "an individual´s perception of general support or specific supportive behaviors […] from people in their social network" (Malecki & Demaray, 2003, p. 232). A meta-analysis conducted by Chu, Saucier, & Hafner (2010) showed that social support was significantly associated with different aspects of wellbeing in children and adolescents, including social adjustment, self-concept, and "psychological adjustment", which included measures of anxiety, depression, and happiness. Other studies claim that social support from different people in the school community can have positive effects on the well-being of adolescents (Danielsen, Samdal, Hetland, & Wold, 2009; Rueger, Malecki, Pyun, Aycock, & Coyle, 2016). Social support can fill different functions in the lives of adolescents. For instance, adolescents appreciate emotional support from parents and classmates, and informational support from teachers. Emotional support is related to feelings of trust and love from others, while instrumental support is related to getting help from someone in the form of services or materials (Malecki & Demaray, 2003). Thoits (2011) states that feedback derived from positive social relations contribute to better self-esteem, which is associated with less mental health problems and better quality of life. She argues that different forms of support from others, both emotional and instrumental, can buffer against the potentially detrimental consequences of strains and negative life events. DuBois et al. (2002) found self-esteem mediating the relationship between social support and emotional and behavioral problems in a longitudinal study with American 10-15 years old. Social support is considered a factor of the resilience of adolescents (Hjemdal et al., 2006a). Thus, the positive relations factor is particularly central in the potential bridging between different levels of resilience.

The Belonging Factor

The belonging factor concerns all school community members´ experience of being valued at school and feeling that they have a meaningful place in the school community. The factor contains items like "*Students find purpose and meaning through their participation in the school activities*".

Two concepts related to a sense of belonging to school are *psychological sense of school membership* and *emotional engagement* (Goodenow, 1993; Wang, Chow, Hofkens, & Salmela-Aro, 2015). With both these concepts, students are evaluating their own experience in school, rather than the school community itself, like in the SRS-A. Carol Goodenow developed a scale called the Psychological Sense of School Membership scale (*PSSM*), which is thought to measure "the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment" (1993, p. 80). This psychological membership resonates with the concept of belonging. Shochet, Dadds, Ham, & Montague (2006) found that PSSM measured at baseline predicted depression 12 months later in boys and girls, anxiety in girls, and general functioning in boys (12-14 years old), controlling for initial internalizing problems. Other studies have also found the PSSM to be related to mental health in adolescents (Newman, Newman, Griffen, O'Connor, & Spas, 2007; Gaete, Rojas-Barahona, Olivares, & Araya, 2016). Goodenow hypothesizes that a sense of psychological membership is especially important to young students´ motivation to engage in school, socially as well as academically, and this is also supported in studies (Goodenow, 1993; Neel & Fuligni, 2013). Emotional engagement is, like the belonging factor, related to whether students feel like they belong to their school, and that life at school is meaningful for them. It can be conceptualized as "students positive affect toward and identification with school" (Wang et al., 2015, p. 58). Longitudinal studies have shown emotional engagement in school to predict depression, problem behaviour (delinquent behaviour and drug use), and dropout in adolescents (Wang & Fredricks, 2014; Wang et al., 2015).

A possible explanation of the connection between a sense of belonging to school and mental health is offered by Millings et al. (2012). They argue that perceived positive feedback that is received by students who experience belonging to school can act to buffer against the effect of risk factors for mental problems, like negative life events. Discussing how a lack of school belonging might increase the risk of dropout from school, Wang & Fredricks (2014) propose that high school dropout often comes as a result of a long, cumulative process with decreasing levels of school engagement and increasing levels of involvement in risky

behaviours. They also argue that youth who are emotionally engaged in school to a higher degree strive to live up to societal expectations and are more likely to obtain support from teachers and other engaged peers.

The Inclusion Factor

The inclusion factor of the SRS refers to the appreciation, rather than exclusion, of school community members with various characteristics. The factor is especially concerned with how certain community members such as ethnical or sexual minorities, or students with special needs or disabilities, are treated. The inclusion factor contains items like "*Students and school staff know how to break barriers for the participation of people with different family background (e.g. special needs, multicultural, social status, sexual diversity, disabilities, etc.)*".

Inclusion encompasses respect towards and appreciation of all kind of human differences, including minority groups frequently subjected to bullying and discrimination, like gay, lesbian, bisexual or transsexual (LGBT) youth (Birkett, Espelage, & Koenig, 2009), and students with learning difficulties or developmental disabilities (Blake, Lund, Zhou, Kwok, & Benz, 2012). School bullying is present when a student repeatedly and over time is exposed to aggressive behaviour from one or more peers, and there is an imbalance in power between the victim and the bully or bullies (Olweus, 1994). Bullying is something more than sporadic fights or disagreements between students (Whitley, Smith, & Vaillancourt, 2013), and can include behaviour like isolation from peers. Being a victim of bullying can have long-term negative consequences. In a meta-analysis, Moore et al. (2017) found evidence of a causal relationship between victimization in childhood or adolescence, and later mental health problems like anxiety, depression, and suicidal behaviour. Some studies have also pointed out that minority groups report less satisfaction with school than their peers (Birkett et al., 2009; Skrzypiec, Askell-Williams, Slee, & Rudzinski, 2016). School characteristics seem to influence the degree of bullying. Birkett et al. (2009) found that a "positive school climate" was associated with reduced victimization in LGBT youth. Other studies have also shown that schools can improve students´ tolerance for differences, and reduce bullying (McAlister, Ama, Barroso, Peters, & Kelder, 2000; Schultz, Barr, & Selman, 2001; Turner, Reynolds, Lee, Subasic, & Bromhead, 2014). An inclusive school community, where differences are respected, seem to be especially important for potentially vulnerable groups of students.

According to *social identity theory*, we are inclined to create mental boundaries between our perceived "ingroups", to which we belong, and our "outgroups", to obtain good self-esteem through a positive social identity (Tajfel, Turner, Austin, & Worche, 1979; Tajfel & Forgas, 2000). We seem to favour individuals from our ingroups (McLeish & Oxoby, 2011; Balliet, Wu, & De Dreu, 2014). For instance, Finnish students between 14 and 16 years old showed the least appreciation towards peers who they perceived to be on the opposite end than themselves on school grades, sports participation, and problem behaviour (Laursen et al., 2010). According to the *Common Ingroup Identity Model*, people can get more positive attitudes towards others if they are induced to perceive themselves and the other person as belonging to a single group rather than separate in- and outgroups. This process is called *recategorization* (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). Schools with a culture of inclusion may breed a more "inclusive social identity" in children and adolescents (Houlette et al., 2004).

The Participation Factor

The participation factor represents whether school community members are given the opportunity to participate meaningfully in activities and decision-making at school. One example of an item is "*The school staff and teachers appreciate and promote the participation of parents*". As the factor explicitly stresses the role of parents and families, it is particularly important when it comes to recognizing parents´ contribution to the school community.

Parental involvement in school contexts has been defined and measured in many ways. Here, it will be conceptualized as related to both the quantity and the quality of the reciprocal communication between parents and teachers, as well as parents´ involvement in school-related activities, both at home and in school (El Nokali, Bachman, & Votruba-Drzal, 2010). Several studies have highlighted the importance of different aspects of parental involvement for students´ academic, emotional, social and cognitive development (Hofman, 1995; Barnard, 2004; Domina, 2005; Hill & Tyson, 2009; El Nokali et al., 2010; Wang & Sheikh-Khalil, 2014). For instance, in a study by Wang & Sheikh-Khalil (2014), the frequency of school based parental involvement (i.e. when parents attend school events and volunteer at school) at one point predicted less depression one year later in students aged 15-17 years old. Barnard (2004) found that teacher ratings of the quantity and quality of parental involvement at school from grades 1 to 6 significantly predicted dropout and high school completion at age 20, thus underscoring the potential long-lasting effects of early parental

involvement. Another aspect of the participation factor is the involvement of different actors in decision-making processes at school. Hofman (1995) found in a random sample of 133 Dutch schools that schools with school boards that included parent committees had the best academic achievement in their students.

Parents´ participation in school activities signal that they place importance on their child´s academic progress and well-being. This can give the student a sense of caring and support from and connection to its parents, which in turn can "help the student construct positive representations of self" (Wang & Sheikh-Khalil, 2014, p. 620). Parents who are more involved in school might get more information about their child's well-being and development, which they can use constructively in their parenting (Domina, 2005). El Nokali et al. (2010) propose that a close cooperation between school and parents might contribute to create consistent disciplinary and academical approaches between school and home. The interaction between systems, also called mesosystems (Bronfenbrenner, 1977), can impact on children's development by either pulling them in different directions or working together to foster positive development. Hofman (1995) argue that parents might contribute with important perspectives that can inform decision-making processes at schools. Parents may also be more inclined to working towards school goals if they feel that they are a part of the decision-making process.

The Mental Health Factor

The mental health factor taps the school community´s knowledge about the development of mental health in children and adolescents, the ability to act constructively towards students´ mental health challenges, and to deal with negative stereotypes about mental health. The factor contains items like "*The school staff and teachers have information about adolescents´ mental health and development*". The focus of the mental health factor is to establish whether the entire school community is equipped to address adolescent mental health in beneficial ways.

Studies from different developed countries have indicated that less than one third of young people with mental health problems such as anxiety and depression actually receive help (Gulliver, Griffiths, & Christensen, 2010; Rickwood, Deane, & Wilson, 2007; Whitley et al., 2013). Students with mental health difficulties are more prone than others to experience a wide range of negative short- and long-term outcomes, like less school engagement and participation, school dropout, and unemployment (Whitley et al., 2013). A concept with

similar meaning as the mental health factor of the SRS is *mental health literacy*. Jorm et al. define mental health literacy as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (1997, p. 182). Specifically, they mention abilities to recognize specific disorders, knowing how to seek information about mental health, and attitudes that promote recognition of mental health problems and help-seeking behaviors. Low mental health literacy in students, school staff and parents, is a barrier for help seeking in adolescents with mental problems, for instance through increasing stigma around mental illness (Gulliver et al., 2010; Rickwood et al., 2007). Teachers might overlook how school-related problems in students can be manifestations of mental health problems (Rickwood et al., 2007), while students may lack the knowledge to evaluate whether their emotional problems are "normal" or merits professional help (Gulliver et al., 2010). Important structural facilitators for help seeking are social support and encouragement from others, including friends, family, and the school staff (Barker, Olukoya, & Aggleton, 2005; Gulliver et al., 2010). The mentioned barriers and facilitators seem to be affected by efforts at school (Sawyer, Scales, & Cvetkovski, 2010; Jones, Brown, & Lawrence Aber, 2011; Jorm, Kitchener, Langeveld et al., 2011; Mcluckie, Kutcher, Wei, & Weaver, 2014). Breaking down barriers for help seeking for mental disorders in adolescents is likely to lead to improved outcomes also in other domains than mental health, in line with the developmental cascades tradition. Here, it is claimed that changes within one domain of development can alter the course of development in other domains (Masten & Cicchetti, 2010). Longitudinal studies have revealed typical developmental pathways connecting changes within the domains of mental health problems, behavioral problems, and academic achievement (Masten et al., 2005; Moilanen, Shaw, & Maxwell, 2010; Jones et al., 2011). The potential for spillover effects from improvements in one domain to others imply that early detection of mental problems can have additional positive effects on the developmental trajectories of children and adolescents beyond the alleviation of current difficulties.

The Present Study

As outlined above, available research suggests that the proposed five factors of the SRS are all highly relevant for mental health and wellbeing in adolescent students**.** The present study is conducted to examine the psychometric properties of the School Resilience Scale for adults, in order to support a newly developed construct of school resilience. The rationally-theoretically developed five correlated-factors structure of the SRS-A was tested in a sample

of European adults. There were also conducted tests of internal consistency. Finally, effects of demographic variables on the scale scores of the SRS-A and each factor were explored.

Objectives. The main objective of this study was to contribute to the structural validation of the School Resilience Scale. The main research questions were as follows:

Can the adequacy of the hypothesized five correlated-factors structure of the School Resilience Scale for adults be supported empirically in a confirmatory factor analysis?

Can the internal consistencies of the School Resilience Scale for adults and each of its five factors be supported through reliability analyses?

To provide basis for future hypotheses regarding school resilience, a secondary objective was to explore effects of demographic variables on the scale scores of the School Resilience Scale for adults and each of the five factors through independent samples t-tests and correlation analyses. The research question is as follows:

Will there be any effects of type of respondent (parent or teacher) or age on the School Resilience Scale for adults or any of the five factors it contains?

Hypotheses. The following main hypotheses will be tested:

A confirmatory factor analysis will demonstrate the adequacy of a School Resilience Scale for adults structure with five correlated factors, each containing four items.

Reliability analyses will show acceptable internal consistencies of the School Resilience Scale for adults and of each of the five factors.

No hypothesis is connected to the secondary objective due to the lack of previous studies with the SRS-A.

Methods

Subjects and Procedure

Subjects were recruited locally in four European countries, Denmark, Italy, Spain, and Poland, with the majority coming from Denmark (53.4 %). The sample originally consisted of 414 subjects. 72 subjects responded to less than half of the items of the SRS-A and were excluded from analyses. With this criterion, the dropout rate was approximately 17 %. For the analyses, the sample consisted of 342 subjects. The demographic characteristics of the sample were not altered much by the removal of the 72 subjects, indicating that no measured variable systematically predicted dropout from the study. The descriptive statistics of the final sample are presented in Table 1.

Table 1.

Demographic properties of the sample.

	Entire sample	Parents	Teachers
N	342	212 (62.0 %)	130 (38.0 %)
Age, *M* (*SD*)	45.49 (6.70)	44.67 (6.58)	46.84 (8.40)
Women, *N*	280 (81.9 %)	176 (83.0 %)	104 (80.0 %)

The data for this study stems from a survey of adults during the co-creation phase of the UPRIGHT project. SRS-A was a part of a survey which was distributed from early May 2018. The inclusion criterion for participation was that the parents and teachers should have connection to one of the UPRIGHT intervention schools. UPRIGHT defined a minimum of 40 subjects for each target group in each country. Local researchers were encouraged to recruit an equal number of men and women. The subjects were contacted by email, and the local researchers used the authorities of each school to reach potential subjects, making the study sample a convenience sample. The subjects then answered to the survey electronically. The survey included topics related to the co-creation of UPRIGHT, but for this thesis, only demographic variables (age, gender, and type of respondent: parent or teacher) and SRS-A items are analysed. The subjects were instructed that their participation was important to help designing the UPRIGHT project. The SRS-A was introduced under the heading "School environment". The UPRIGHT project and all associated procedures were approved by

institutional review boards in Spain, Italy, Poland, and Denmark, respectively. The relevant ethical committees are listed in Las Hayas et al. (2019). Informed consent was included in the survey; thus, it was obtained from all subjects of this study.

The School Resilience Scale for Adults

School resilience was measured using the 20-item School Resilience Scale for adults. The SRS-A is designed to measure the novel concept of school resilience. The scale comprises statements ranked on a 5-point likert-scale, with 1 indicating "Strongly disagree", and 5 indicating "Strongly agree". The scale is assumed to be on an intervall level, with equal differences between 1 and 2, 2 and 3, etc. The scale was originally constructed in English, and then translated into Basque, Spanish, Italian, Polish, and Danish for the co-creation phase of the UPRIGHT project. As the SRS-A is recently developed, this is the first validation study of the scale. Reliability estimates from this study are presented in Table 2.

Table 2.

Internal consistencies of the School Resilience Scale for adults and each factor.

Scale	Cronbach´ α
The School Resilience Scale for adults	.94
Positive Relations	.79
Belonging	.83
Inclusion	.82
Participation	.84
Mental health	.87

Analyses

Analyses were conducted using IBM SPSS Statistics version 25. For the confirmatory factor analysis (CFA) the graphical software IBM SPSS AMOS 25 was used. As described above, 342 subjects were considered eligible for the CFA. IBM SPSS AMOS need complete datasets to create modification indices, and some of the subjects lacked scores on some of the SRS-A items. The chosen imputation method was single logistic imputation, where SPSS create a new dataset in which the missing scores are created from a regression equation based on the cases with complete data (Byrne, 2010). A more rigorous imputation method, like multiple imputation, was not considered necessary, as the missing data only constituted 0,4 % of the SRS-A data.

Before conducting a CFA, a measurement model is pre-specified. In this case, the measurement model was created through a rational-theoretical approach by researchers at the Resilience Centre at the Norwegian University of Science of Technology. The CFA results in evaluations of how well the measurement model fit the observed data of the study (Byrne, 2010). For this study, a five correlated-factors model of the SRS-A was created in AMOS, as shown in Figure 1. Estimates were calculated with a robust maximum likelihood (MLR) estimator. The goodness-of-fit of the model was determined using chi square statistics ($\chi 2$), and additional model fit indices: the Tucker-Lewis Index (TLI), the comparative fit index (CFI), the standardized root-mean-square residual (SRMR), and the root mean square error of association (RMSEA). The chi square ($\chi 2$) statistic should ideally be significant, but as the $\chi 2$ is highly sensitive to sample size, a significant probability was not to be expected with this sample size ($N = 342$) (Byrne, 2010). Therefore additional fit indices were inspected. Hu & Bentler (1999) note that .90 often has been used as a cut off value for acceptable model fit for the comparative fit indices CFI and TLI, but argue that cut off values closer to .95 will give a better balance between the probabilities for type I and type II errors (rejecting an acceptable model and accepting an unsatisfisfactory model, respectively). Here, CFI and TLI values below .90 were taken as indicative of lack of model fit, values from .90 to .95 as indicative of fair model fit, while values above .95 indicated good model fit. For the RMSEA and SRMR indices, values above .08 were taken as indicative of a lack of model fit, values from .05 to .08 of a fair model fit, and values below .05 of a close model fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; Byrne, 2010). Modiciation indices were not inspected, as the sample size and recruitment method of the study gave a high possiblitity of "capitalizing on chance". This means that data-driven model changes could made based on characteristics of the sample rather than of the model (Cribbie, 2000). In addition to indicators of model fit, factor loadings and correlations between the five factors were offered as output in the SPSS AMOS. Correlations were measured in Pearson´s r. In general, correlations between SRS-A factors should be at least moderate, i.e. above .50 (Taylor, 1990), although close to total correlation (1.00) could indicate redundancy of items or factors.

The internal consistencies of the entire SRS-A and each factor were calculated with Cronbach´ alpha (α) coefficients. Kline (2000) consider α-coefficients around .90 as ideal in reliability analyses, while they should not drop below .70. Here, α-coefficients from .70 to .80 were considered acceptable, and values from .80 to .90 considered to be good. Values well above .90 can indicate that some items are redundant due to very similar content (Simms,

2008). As we can see from Table 2, this was the case with the SRS-A. Therefore, multicollinearity analyses were carried out, to inspect whether two or more of the independent variables (in this case: items) were too heavily correlated. If that should be the case, it would not affect the overall fit or predictions of the model, but could bias the standard errors and p-values of the items in question (Vatcheva, Lee, McCormick, & Rahbar, 2016). Variance inflation factors (VIF) above 5 will here be taken as indicative of highly correlated items (Daoud, 2017).

Figure 1.

The hypothesized five correlated-factors model of the School Resilience Scale for adults, with factor loadings.
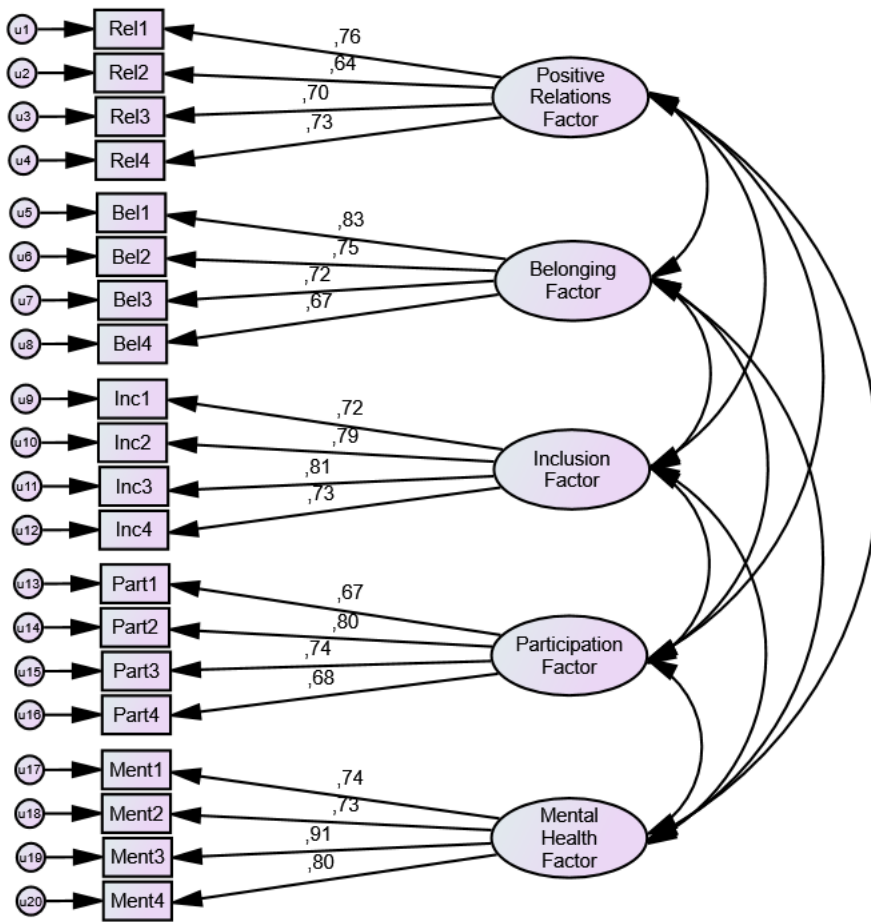
Note. u= Uniqueness, or error, for each observed variable.

"Rel1", "Part2", etc., indicate each of the 20 items, and which latent factor it is hypothesized to belong to.

Comparisions of means on the SRS-A and on each factor scale by type of respondent were carried out with t-tests. Comparision of means by gender were not performed, as there

were more than four times as many women as men in the sample. Respondent type had two categories, namely teachers or parents. This dichotomous subdivision allowed for the usage of independent samples t-test. For significant t-values, effect sizes were calculated using Hedges´ *g*, because this effect size measure include a weighting of the sizes of the two samples in the calculation of the pooled standard deviation. Hedges´ *g* can be interpreted the same way as Cohen´s *d*, with .20 indicating a small effect size, .50 indicating a medium effect size, and .80 indicating a large effect size (Cohen, 1988).

Pearson correlation analyses were performed to explore the associations between SRS-A scale scores and age. Both the SRS-A scales and age are continuous variables. Effect sizes were calculated using Pearson's *r*. Significant correlation coefficients below .35 were considered to be weak correlations, significant coefficients from .36 to .67 to be moderate correlations, and significant coefficients between .68 and 1.0 to be strong correlations (Taylor, 1990).

Results

Confirmatory Factor Analysis

The CFA predominantly supported the hypothesis that the five correlated factors model would describe the data adequately. Model fit indices are presented in Table 3. The chi-square statistic was significant ($p < .001$), which suggests poor model fit. However, with this sample size ($N = 342$), this was expected. The values of the TLI, CFI and RMSEA indices were within acceptable ranges, while the SRMR value indicated close model fit. The latter indicated an acceptable discrepancy between the hypothesized and observed correlation matrices. For the RMSEA index the 90 % confidence interval stretched slightly above the recommended .08. Factor loadings ranged from .64 to .91, and are presented in Figure 1. Correlations between the five SRS-A factors are shown in Table 4. All correlations were significant ($p < .001$).

Table 3.

*Indicators of model fit of the School Resilience Scale for adults (*N = 342*).*

Model fit index	Value
χ^2 (160, $N = 342$)	464,78 ($p < .001$)
Tucker-Lewis Index (TLI)	.911
Comparative Fit Index (CFI)	.925
Standardized Root-Mean-Square Residual (SRMR)	.048
Root Mean Square Error of Association (RMSEA)	.075

Table 4.

*Correlations between factors of the School Resilience Scale for adults (*N = 342*).*

	Positive relations	Belonging	Inclusion	Participation	Mental health
Positive relations	-	.98	.87	.81	.64
Belonging	-	-	.85	.75	.72
Inclusion	-	-	-	.87	.81
Participation	-	-	-	-	.68
Mental health	-	-	-	-	-

Internal Consistency

Reliability analyses mostly supported the hypothesis stating that the internal consistencies of the SRS-A and the five SRS-A factors would be within acceptable ranges.

The results are reported in Table 2. Cronbach´ α could not be improved if any item was deleted, neither for the entire SRS-A nor for any of the factors, further supporting the internal consistency of the SRS-A. The internal consistency of the entire SRS-A was as high as .94, which might be considered too high. In the multicollinearity analyses, the highest values belonged to the third mental health item (Ment 3), but no VIF values above 5 were found.

Effects of Demographic Variables

The research question regarding effects of demographic variables was responded to in an exploratory fashion. The results of the independent samples t-tests are shown in Table 5. Teachers scored significantly higher ($p < .05$) than parents on the entire SRS-A, and on three factors of positive relations, inclusion and participation. The effect size was moderate on the participation factor, and low on the entire SRS-A and the positive relations and inclusion factors. Significant differences could be found in the same scales looking at only women subjects, while no significant differences were found between fathers and male teachers.

Table 5.

Independent samples t-tests by respondent type.

		Parents			Teachers		T-test		
	n	*M (SD)*	*CI* (95 %)	n	*M (SD)*	*CI* (95 %)	*t*-value	*p*	*g**
Entire sample	212			130			*df*= 340		
SRS-A		3.52 (0.62)	[3.44-3.61]		3.68 (0.51)	[3.59-3.76]	-2.35	**.02**	0.26
Positive relations		3.78 (0.70)	[3.68-3.87]		3.96 (0.59)	[3.85-4.06]	-2.43	**.02**	0.27
Belonging		3.58 (0.72)	[3.49-3.68]		3.70 (0.65)	[3.58-3.80]	-1.45	.15	
Inclusion		3.43 (0.71)	[3.33-3.52]		3.61 (0.59)	[3.51-3.72]	-2.48	**.01**	0.28
Participation		3.49 (0.66)	[3.40-3.57]		3.80 (0.61)	[3.70-3.91]	-4.45	**< .001**	0.50
Mental health		3.35 (0.72)	[3.25-3.45]		3.30 (0.68)	[3.19-3.43]	0.51	.61	
Women only	176			104			*df*= 278		
SRS-A		3.51 (0.61)	[3.42-3.60]		3.70 (0.53)	[3.59-3.80]	-2.57	**.01**	0.32
Positive relations		3.77 (0.70)	[3.66-3.87]		3.98 (0.61)	[3.86-4.10]	-2.54	**.01**	0.31
Belonging		3.57 (0.71)	[3.46-3.68]		3.69 (0.68)	[3.56-3.82]	-1.42	.16	
Inclusion		3.41 (0.72)	[3.31-3.52]		3.62 (0.62)	[3.50-3.74]	-2.40	**.02**	0.30
Participation		3.48 (0.64)	[3.39-3.58]		3.87 (0.61)	[3.75-3.99]	-4.98	**< .001**	0.62
Mental health		3.33 (0.71)	[3.22-3.43]		3.32 (0.70)	[3.19-3.46]	0.03	.98	

Note. SRS-A: School Resilience Scale for adults

P-values < .05 are marked in bold.

*g**: Effect sizes are reported in Hedges *g*, and only for significant mean differences.

For the entire sample ($N = 342$), age was significantly positively related to scores on the positive relations factor, although the correlation coefficient was weak ($r = .14$, $p < .01$). When subjects were grouped by gender and type of respondent, the only significant moderate correlations between age and scale scores were found with fathers ($N = 36$). Here, age was moderately significantly correlated with the mental health factor ($r = .46$, $p < .01$) and the entire SRS-A ($r = .38$, $p = .02$).

Discussion

The results from the CFA predominantly supported the proposed five correlated-factors model of the SRS-A. The model fit indices were within acceptable ranges. The factor loadings from factors to items were moderate to high, as were the correlations between factors. Reliability analyses mostly supported the internal consistency of SRS-A and the five proposed factors. These results suggest that the SRS-A in its' current form can be used in further validation studies on school resilience. When it comes to effects of demographic variables on SRS-A and the five factor scales, the most interesting finding was related to how teachers and parents evaluated school resilience. Teachers scored both school resilience and the three factors of positive relations, inclusion, and participation, significantly higher than parents, with the highest effect size on the participation factor. Some effects of age did also emerge from the data. Specifically, higher age had a modest positive correlation with positive relations. Also, for fathers, higher age showed a moderate correlation with the mental health factor, and school resilience as a whole.

While the CFA in general supported the five correlated factors model of the SRS-A, some issues arose. The 90% confidence interval for the RMSEA fit index stretched slightly above the recommended limit value of .08, which indicate that the population covariance matrix deviated from the optimally chosen parameter estimates of the hypothesized model. As mentioned above, modification indices were not inspected in this thesis due to the sampling process of the pilot study. Also, the correlation between the two factors of positive relations and belonging was .98. With an almost total correlation between two factors, a question of redundancy of items arise. The possibility for several items measuring the same constructs is also raised by the high internal consistency of the SRS-A (α = .94). However, multicollinearity analyses indicated that no claims of specific items being redundant can be made from this study.

Simms (2008) emphasize that scales developed through a rational-theoretical approach, like the SRS, is dependent on the researchers having a total understanding of the construct in question. This is rarely the case, so further validation studies can result in changes in the items or factor structure of the scale, including the addition of new factors. For instance, some school measures address students´ perception of safety at school (Sharkey, You, & Schnoebelen, 2008; Lester & Cross, 2015). In research on community resilience, leadership is pointed out as an important element (Berkes & Ross, 2013; Leykin et al., 2013).

Experiencing school leaders as emotionally unsupportive yet controlling can increase the risk of burnout in teachers with high workloads (Skaalvik & Skaalvik, 2009; Fernet et al., 2012). Teacher burnout have been found to be associated with negative emotional outcomes for teachers, and with less effective job performance, which in turn can affect students, and the school community as a whole (Schwab, Jackson, & Schuler, 1986; Arens & Morin, 2016). However, while emotionally supportive and trusting leadership can positively affect teachers and the rest of the school community, the inclusion of a leadership factor in school resilience can be problematic. School resilience is a concept focused on the interaction of the whole school community, and is evaluated by school staff, students, and the parents or other caregivers of the students. Teachers might interact with school leaders daily, but the evaluation of the school leadership can be more difficult for students and their caregivers, who in many cases have limited interaction with school leaders, and insight in their work. While aspects of school leadership can affect the resilience of a school, it might be better measured separately from the SRS.

The effects of demographic variables found in this study are discussed as a part of the preliminary research on the SRS-A, and as a basis for later hypotheses in work on school resilience. Teachers scored both the school resilience and the three factors of positive relations, inclusion, and participation, significantly higher than parents. The largest effect was found on participation, with a moderate effect size. This is interesting because this factor most explicitly stresses the involvement of parents in school. Hornby & Lafaele (2011) discuss barriers to parental involvement in school. Amongst the barriers they mention is a lack of explicit encouragement for parental involvement from school staff. Teachers might sometimes try to signal openness and implicit invitations to parental involvement, while many parents need more explicit requests to really feel that they are welcome to be more involved in school. This might relate to the results of the present study. Another possible barrier for parents to get involved in school mentioned by Hornby & Lafaele (2011) is a perceived difference in the goals and agendas of school staff and parents for the interactions between home and school. For instance, some parents may experience that schools attempt to persuade them into meeting the school´s needs, instead of dealing with the concerns that the parents themselves put forth. Barge & Loges (2003) propose two types of discourse between school and home. In the first, the main goal of the interaction is information transmission. Here, the school is in a position of power, as parents mainly are meant to give information related to their child's academic performance, not to suggest how curriculum or teaching methods could

be improved. In the second discourse, there exist a partnership between parents and school. Here, the power balance is more equal, and parents can actively discuss their thoughts about the education in the school. The effect of respondent type on the participation factor could stem from some parents perceiving a discourse of information transmission rather than collaboration between home and school, while teachers may emphasize the some efforts that are made to involve parents. If replicated, this difference can act as an example on how the results on a specific school resilience factor can inform areas of improvement for schools, in this case in the relation and collaboration between schools and parents.

In the sample, age is not systematically related to the SRS-A scales scores, however, some effects of age emerged from the data. Higher age showed a low positive correlation with positive relations. With a correlation coefficient of .14, the coefficient of determination (r^2) of this correlation was only around .02, indicating that age may only explain around 2 % of the variation in positive relations. In the light of the limitations of the study, which will be discussed below, this weak correlation will not be discussed further. For fathers, higher age showed a moderate correlation with the mental health factor, and school resilience as a whole. The limited sample size of fathers ($n = 36$) calls for special caution in interpretation of these findings. A possible explanation for the age effect on the mental health factor could be that older fathers have lower mental health literacy than younger fathers, and thus overestimate how well schools cope with mental health issues (Hadjimina & Furnham, 2017). However, with 89 % of the fathers being between 41 and 57 years old, the age range is too small to indicate a major cohort effect.

Despite the main goal of schools being educational, the academic achievement of students should not be considered the sole focus if schools. Studies referred to in the literature review demonstrate the pitfall it is to take good academic achievement of students as evidence of good general functioning and mental health (Wang et al., 2015; Bond et al., 2007). Schools can affect many aspects of the development of children and adolescents, including mental health. Here, school resilience can be an exciting concept. The development of this, and other concepts and measures, can hopefully contribute to the recognition of the potential school have to affect not only the academic development of children and adolescents, but also the development of mental health.

Strengths and Weaknesses

The main strength of this study is the use of a strong statistical method for determining model fit, namely confirmatory factor analysis. However, the present study also has some weaknesses. Firstly, the cross-sectional design of this study is an important weakness. Secondly, the single logistic imputation method of missing data used in this study does not restrict the variance of the variables to the same degree as simple mean imputation, but is still inferior to multiple imputation. This is because the imputation of a single value on each missing datapoint fails to reflect how uncertain predicting missing values is (Byrne, 2010). Thirdly, the SRS-A is not yet tested for measurement invariance, which increases the uncertainty of conclusions regarding effects of demographic variables. This is because it is not established that the constructs the SRS-A measure is conceptualized in the same way across respondent type and age. Measurement invariance testing will be explained further below. Furthermore, the sample of this study is a convenience sample, not randomized or stratified in any way. Finally, the number of men participation in the study was small ($n = 62$) compared to number of women ($n = 280$). Later invariance testing of the SRS-A in relation to gender can inform about the degree to which this can have affected the results of the CFA.

Implications and Future Directions

The main implication of this study is that the SRS-A with the current five correlated factors-structure can be used in further research on the newly proposed concept of school resilience. This can be concluded because the confirmatory factor analysis and reliability analyses yielded acceptable results.

This study does not conclude the structural validation phase in the development of the SRS-A. An almost total correlation between the positive relations and belonging factors in this study ($r = .98$) imply a possible redundancy of some items, as does the high internal consistency of the SRS-A ($\alpha = .94$). However, no specific possibly redundant items could be detected through multicollinearity analyses. The RMSEA fit index was only marginally acceptable (.075). As mentioned above, the sample size and recruitment method of the current study made it doubtful to inspect modification indices. Modification indices estimate how much the $\chi2$-statistics of the measurement model will improve if the fixed relationship between two variables were to be freely estimated (Byrne, 2010). This information can in turn be used to propose theoretically supported changes to the measurement model. As post hoc-changes can be problematic, some researchers instead propose testing several a-priori models

on the same data set (Hox & Bechger, 1999). Possible structural changes to the SRS-A should be explored in future studies with larger and more representative samples

Although effects of demographic variables on the SRS-A were explored in this study, such results get more reliable once the *measurement invariance* (*MI*) of the SRS is tested across relevant parameters (Sass, 2011). When the responses of two groups on scales such as the SRS-A are compared, it is assumed that the instrument measures the same psychological construct in both groups (Milfont & Fischer, 2010), including that the relations between variables (observed and latent) are conceptualized in the same way (Byrne, 2004). These assumptions are assumptions of MI, which also is referred to as equivalence of measures. Several types of invariance can be tested, e.g. whether factor structures, factor loadings, and factor variances are equal across groups (Milfont & Fischer, 2010). Multi-group CFA is considered a powerful and versatile method of testing MI. With this method, more and more parameters are constrained in a certain order. Then, the changes in goodness-of-fit indices is inspected for each added constraint (Milfont & Fischer, 2010). Without MI, results of factor analyses and other statistical techniques might be biased by subject selection effects (Vassend & Skrondal, 1997). The convenience method of subject recruitment in this study made the data unsuitable for MI testing. In future research on the SRS, invariance should be tested across genders, respondent types (teachers, parents, students), and age.

Once the substantive and structural validity phases are concluded, the establishment of *external validity* is in order according to Loevinger´s (1957) model of scale construction. *Concurrent validity* is present when the scale correlates in the expected direction with relevant outcomes at a single point in time, while *predictive validity* is present when the scale measured at one point predicts relevant outcomes at a later point. In accordance with its theoretical foundation, it is expected that school resilience will be related to related and/or predict adolescents' mental health and wellbeing, positive adaptation in schools and educational outcomes. Specifically, it can be hypothesized that the SRS scores, as rated by both adults and students, will be empirically related to adolescent depression, anxiety, and behavioural problems, bullying, school dropout, and help seeking for mental health problems (e.g., Kuperminc et al., 2001; Barnard, 2004; Shochet et al., 2006; Bond et al., 2007; Rickwood et al., 2007; Birkett et al., 2009; Gulliver et al., 2010; Joyce & Early, 2014; Wang & Fredricks, 2014; Wang & Sheikh-Khalil, 2014; Lester & Cross, 2015; Wang et al., 2015). An early opportunity to examine the criterion validity of the SRS-A will be the UPRIGHT project. Here, many of the abovementioned constructs will be measured, in addition to the

SRS, as rated by both adults and students. The longitudinal design of the project makes it possible to examine the concurrent as well as predictive validity of the SRS.

The SRS can, when validated, be a resource in research on how variables on different levels interact to affect human development and well-being. Berkes & Ross (2013) propose that resilience on different levels can influence each other. Lyons et al. (2016) suggest that resilient communities supply members with social resources, which in turn can enhance their individual resilience. The potential for social groups to affect our mental health and wellbeing is well documented (Jetten, Haslam, Haslam, Dingle, & Jones, 2014). In future studies, it will be interesting to see how SRS reciprocally relates to validated measures of individual resilience, like the Resilience Scale for Adults (RSA) and the Resilience Scale for Adolescents (READ) (Friborg et al., 2003; Hjemdal et al., 2006a), which are both included in the UPRIGHT project. Hill & Rowe (1996) emphasize how students are nested within classes, which are nested within school, which are nested within school districts, and argue in favour of the importance of between-classes variations on student outcomes. There exist several instruments for measuring classroom environment (Fraser, 1998). Reynolds & Packer (1992) claim that unique effects of schools can shrink to small levels if one take classroom variation into the equation. Investigating relationships between variables at different levels of analysis calls for system oriented statistical methods and approaches, like social network analysis and multilevel modelling. Multilevel modelling, for instance, allows for variables at different levels to be accounted for at the same time. With this method, one can explore the amount of variance explained by belonging to a community, like a school, on individual level outcomes, like resilience (Shaw et al., 2016). Although Hill & Rowe (1996) and Reynolds & Packer (1992) were discussing classroom effects on academic achievement, it can be hypothesized that the classroom level is relevant to consider also when resilience and mental health is studied. In later research, SRS should be applied in multilevel statistical methods and approaches, in order to examine the reciprocal relations between school resilience, classroom variables, and individual resilience. In addition, it can be fruitful to examine how school resilience is affected by variables on societal and cultural levels, and the abovementioned school leadership.

Finally, the differentiation between a protective and a compensatory model of resilience is a common theme in resilience research. A protective model imply that resilience has the strongest positive effect when the level of adversity or risk is high, while a compensatory model imply that resilience simply operates in the opposite direction of a risk

factor, regardless of the level of the latter (Fergus & Zimmerman, 2005). In future research it will be interesting to see whether school resilience have a stronger effect for at-risk school community members. For instance, in a protective model of resilience, students in higher risk contexts such as LGBT students, students with special educational needs (SEN). and students from families with low socio-economic status (SES), may benefit more than others on enhancing the mechanisms evaluated in the SRS (Aneshensel & Sucoff, 1996; Espelage, Aragon, Birkett, & Koenig, 2008; Birkett et al., 2009; El Nokali et al., 2010; Ready, 2010; Reiss, 2013; Wang & Sheikh-Khalil, 2014; Skrzypiec et al., 2016). An interesting future line in research on school resilience is the study of how variables like sexuality, learning ability, and SES moderates the relationships between school resilience and outcomes such as mental health, well-being and dropout. Interaction effects between school resilience and risk factors will support a protective model of school resilience, while the lack of such effects will indicate that school resilience is a compensatory variable which have similar effects across levels of risk.

Conclusions

Schools affects adolescents´ mental health and well-being, and the mechanisms behind should be identified. School resilience is a novel concept developed by researchers of the Resilience Centre at NTNU, Trondheim. Resilience is related to the factors and processes that foster human well-being and adaptation. The School Resilience Scale is proposed as a collective resilience measure of the school community. The School Resilience Scale consists of five proposed correlated factors: positive relation, belonging, inclusion, participation, and mental health. In this study, the factor structure and internal consistency of the School Resilience Scale for adults was confirmed. This implies that the scale in its current form can be used in further research processes continuing with further validation of the scale and its use in the promotion of adolescents´ mental health.

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