

Promotion of social and emotional competence

Experiences from a mental health intervention applying a whole school approach

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Received 31 March 2014
Revised 17 June 2014
30 July 2014
4 August 2014
Accepted 9 August 2014

Abstract

Purpose – Within the framework of Health Promoting Schools *Up* is an intervention using a whole school approach aimed at promoting mental health by strengthening social and emotional competence among schoolchildren. Social and emotional competence is an integral part of many school-based mental health interventions but only a minority of interventions measure changes in competences. The purpose of this paper is to present the intervention *Up* and document changes in social and emotional competence among schoolchildren before and after the intervention.

Design/methodology/approach – *Up* consists of four components: education and activities for schoolchildren; development of staff skills; involvement of parents; and initiatives in everyday life at school. *Up* was implemented in two Danish schools in 2010-2011. Social and emotional competence was measured among 11-15-year old schoolchildren before (response rate 96.2 per cent, $n = 589$) and after (response rate 83.9 per cent, $n = 532$) the intervention.

Findings – Changes in level of social competence were assessed by the prevalence of a high level of social and emotional competence before (33.3 per cent) and after (40.8 per cent) the intervention (p -value = 0.01).

Research limitations/implications – *Up* provides valuable experiences for adapting evidence-based mental health promotion to the Danish school system which is characterized by democracy, autonomy and inclusion. Future research should study the implementation and effect of *Up* in larger scale studies.

Practical implications – The comprehensive description of *Up* serves as important information for policymakers and practitioners working with mental health promotion.

Originality/value – The whole school approach intervention *Up* has the potential to promote social and emotional competence and reduce socioeconomic differences in social and emotional competence among schoolchildren.

Keywords Health promotion, Schools, Evaluation, Mental health, Health promoting schools, Social skills, Mental health promotion, Intervention, Whole school approach

Paper type Research paper

Introduction

Mental health affects social and economic outcomes across the life course (Barry *et al.*, 2013; Kirkwood *et al.*, 2008; Freidli, 2009; McDaid and Park, 2011). Childhood and

The authors would like to thank Bjarke Malmstrøm Jensen, Hallur Gilstón Thorsteinsson and Anna Blindum from the Danish MHF for our many years of collaboration. Bjarke, Hallur and Anna have all been part of the development and implementation of *Up* and they have contributed with valuable knowledge and expertise to the project. The authors would also like to thank the staff and schoolchildren in the two schools that were involved in *Up* for their engagement in the project. The project and its further development gained many valuable experiences from the collaboration.

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adolescence offer important windows of opportunity to develop a firm foundation for positive mental health and to prevent mental health problems (Weare and Nind, 2011). Social and emotional competence is an essential aspect of positive mental health and it can influence school attendance, learning and early problem behaviours positively (Durlak and Wells, 1997; Weare and Gray, 2003; Durlak *et al.*, 2011). It is therefore important to develop ways to stimulate children's and adolescents' social and emotional competence.

Social and emotional competence is a capacity that enables individuals to manage and influence their everyday life, engage in social interactions and navigate and partake in the wider society. In this study, like in many others, social and emotional competence is merged into one measure as these two dimensions overlap conceptually. It is defined by Elias as "[...] the ability to understand, manage, and express the social and emotional aspects of one's life in ways that enable the successful management of life tasks such as learning, forming relationships, solving everyday problems, and adapting to the complex demands of growth and development" (Elias *et al.*, 1997, p. 2). Social and emotional competence share many similarities with action competence, which is central to the framework of the Health Promoting School (HPS). Action competence links democracy, participation and health and aims at promoting health by engagement and empowerment of schoolchildren (Clift and Jensen, 2005).

The school is a unique setting for strengthening competences, as suggested by Barry *et al.* "The school setting provides a forum for promoting emotional and social competence as well as academic learning and offers a means of reaching the significant number of young people who experience mental health problems" (Barry *et al.*, 2013, p. 836). During the past two decades there has been an increase in school-based initiatives to promote mental health and wellbeing. A number of studies have demonstrated that successful interventions apply a whole school approach, focus on positive mental health, teach social and emotional competence, include all children in the school, and take place over a lengthy period of time (Weare and Nind, 2011; Barry *et al.*, 2013; Jané-Llopis *et al.*, 2011; O'Mara and Lind, 2013).

In a review of universal school-based social and emotional development programmes Durlak *et al.* (2011) found an 11 per cent improvement in achievement, a 25 per cent improvement in social and emotional skills and a 10 per cent decrease in classroom misbehaviour, anxiety and depression. The effects lasted throughout follow-up periods of at least six months. A review of 52 reviews of school-based interventions to promote mental health concluded that applying a whole school approach is an important characteristic of effective mental health promotion in schools (Weare and Nind, 2011). Key features of a whole school approach comprise classroom curriculum including teaching social and emotional competence as part of the academic learning, improving school ethos, involvement of parents, community involvement and coordinated work with outside agencies (Weare and Nind, 2011).

Applying a whole school approach corresponds with the HPS framework, which also encourages all individuals in and around the school to take part in the health promoting activities (WHO, 2014). A recent study showed that schoolchildren in schools working with or towards a HPS award were less likely to feel left out suggesting that the HPS framework leads to increased levels of social inclusion (Levin *et al.*, 2012). However, only few studies on the impact of HPS on mental health and wellbeing exist. The findings are inconsistent and the studies are difficult to compare. Therefore, more research on this topic is needed.

Even though social and emotional competence is an integral part of mental health promotion in schools, most intervention studies have focused on negative outcomes.

In a review of more than 200 studies targeting the development of social and emotional skills in one way or another, only 32 per cent measured skills as an outcome (Durlak *et al.*, 2011). Much is yet to be learned about how to stimulate schoolchildren's social and emotional competence.

Intervention studies aimed at promoting mental health are still fairly new in Denmark, and adaptation of the evidence-based recommendations of mental health promotion into the Danish school system has not previously been studied. The school systems in Denmark and the other Scandinavian countries build on principles of inclusion, democracy and autonomy. According to Bjerg *et al.* (1995) this is different from school systems in other countries.

In academic papers the majority of school-based interventions promoting mental health are only described briefly and in general terms. Detailed information on what the intervention components actually consist of, how they have been implemented, and by whom, is scarce. To assist practitioners, policymakers and researchers in the planning of mental health initiatives, this paper aims to give a thorough description of a universal whole school approach intervention, *Up*, aimed at strengthening mental health among schoolchildren through promotion of social and emotional competence. Furthermore, the aim is to document changes in social and emotional competence among schoolchildren before and after the intervention in two schools.

Methods

Setting

In Denmark the public school system consists of primary and lower secondary school. The schoolchildren are organized in classes with a maximum of 30 children at the same age, and they remain in the same class from pre-school to year nine (Ministry of Education, 2014; Bjerg *et al.*, 1995). The aim of the Danish public school is to provide schoolchildren with knowledge and skills that prepare them for further education and training, and to promote the well-rounded development of the individual schoolchild (Ministry of Education, 2014).

The multicomponent intervention *Up* was implemented in two public schools in the school year 2010-2011. Both schools are situated in the metropolitan area of Copenhagen in neighbourhoods characterized by a large number of middle and upper class families. *Up* was developed in collaboration between the Danish Mental Health Foundation (MHF) and the Child and Adolescent Health Research Group at the National Institute of Public Health (NIPH), University of Southern Denmark. NIPH was responsible for the conception of the idea, both partners contributed to the planning of the intervention, MHF implemented the intervention and NIPH conducted the evaluations.

The Up intervention

Within the framework of HPSs *Up* is an intervention aimed at promoting mental health among schoolchildren using a whole school approach. *Up* aims at: promoting mental health among schoolchildren by enhancing their social and emotional competences and enabling them to promote their own mental health as well as the mental health of others; and creating a supportive and inclusive school environment that promotes mental health. Furthermore, the ambition is to reduce socioeconomic inequality in social and emotional competence. Research has shown that most mental health outcomes are socially patterned with socioeconomically disadvantaged children having a two- to threefold higher risk of developing mental health problems (Reiss, 2013). *Up*

targets the mental health of the entire study population regardless of need and hypothesizes that the children lacking competences are the ones that will benefit the most from the intervention. This refers to the principle of “herd immunity”, which states that the more people in a community (e.g. a school) who have high levels of mental health (e.g. social and emotional competence), the more likely it is that those with both acute and long-term mental health problems can be supported (Freidli, 2009; Stewart-Brown, 1998).

Up applies a whole school approach and includes all schoolchildren attending the school, staff (teachers, principals, pedagogues, psychologists, etc.), parents and the social, physical and organisational environment of the school. *Up* consists of four components: education and activities for schoolchildren; development of staff skills; involvement of parents; and initiatives in the everyday life of the school (Figure 1).

The preparation phase of *Up* began half a year before the actual intervention started at the beginning of a school year in August 2010. The planning included a course for the staff, delivery of educational materials to the teachers and an analysis of the school culture that guided the intervention.

Education and activities for schoolchildren. The *Up* project group developed educational materials aimed at promoting the schoolchildren’s social and emotional competence. The materials were implemented by the teachers. Building on the theory of action competence, education materials were developed to promote schoolchildren’s

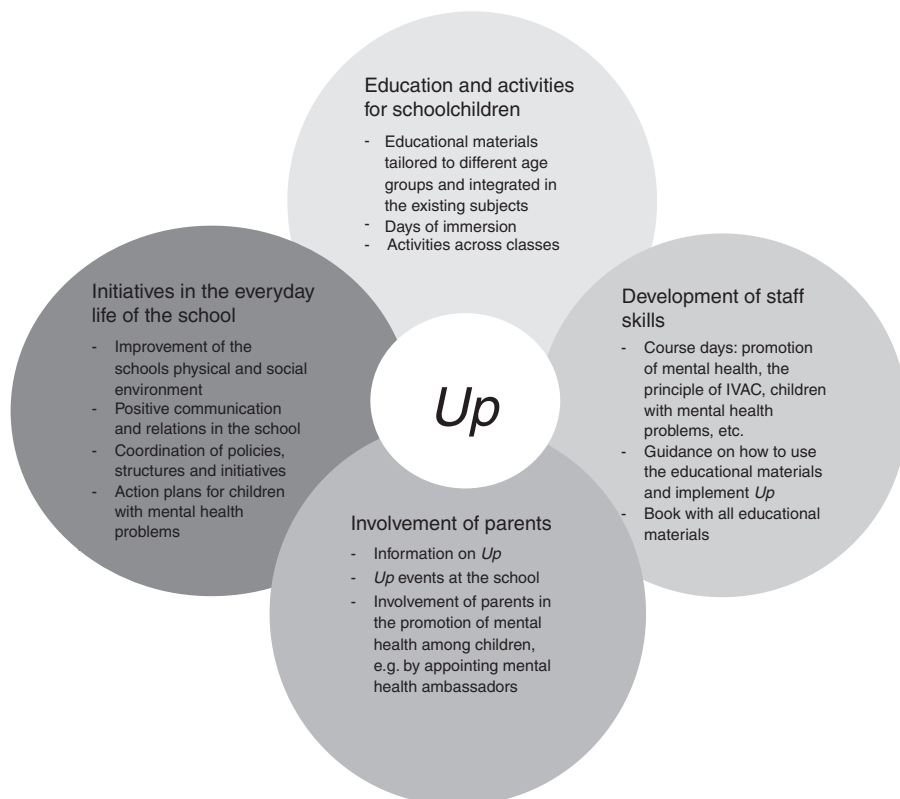


Figure 1. The whole school approach intervention *Up* consists of four components: education and activities for schoolchildren, professional staff development, involvement of parents and initiatives in the everyday life of the school

social and emotional competence via engagement, practice and collaboration. Social and emotional competence was seen as an aspect of action competence and the educational materials build on the didactic model Investigation, Vision, Action for Change (IVAC). IVAC seeks to promote schoolchildren's involvement and feelings of ownership by making them investigate different issues in relation to mental health (what, why, how), create visions (alternatives, dreams) and act to change (choose actions and achieve experiences in regard to implementing the visions) (Jensen, 1997).

The educational materials were tailored to different age groups: pre-school to grade 3, grades 4-6 and grades 7-9. All materials followed the same structure of an Intro, three themes and an Outro (Table I).

Table I presents the themes, perspectives and goals of the educational materials. The Intro builds on the already existing resources and initiatives in the class and school. Further, goals for what the children and school would like to achieve in regard to mental health while working with *Up* during the school year are set. The first theme: All of Us aims to stimulate collaborative skills and create a positive and trustful classroom environment. The second theme: You and Me covers friendships and close relations and the third theme: Myself works with personal experiences, feelings and thoughts, and the children build competence in regard to help seeking. In the Outro the children and teachers discuss if and how the visions and goals have been accomplished and they set goals for further mental health promotion in the school. The materials are structured in order to promote a safe and inclusive environment and to assure sustainability of the schoolchildren's, teachers', parents' and schools' initiatives to promote mental health. Throughout the themes, days of immersion are placed in order for the children to work more in depth with parts of the material.

The materials were designed to promote four key components of social and emotional competence: knowledge, skills, meaning and social action (Bruner, 1998; Weare, 2000). These four elements are similar to the principles of IVAC. To give an example, an exercise in theme 1 for the older schoolchildren focused on creating knowledge about social relations, rights and obligations. The schoolchildren trained their collaborative skills through group discussions and formulation of solutions to exercises inspired by Cooperative Learning (Kagan and Stenlev, 2006). Meaning and

| Module | Perspectives | Goals |
|---------------------|--|--|
| Intro | The good story of the school and the class visions and goals for <i>Up</i> | Enhancement of a supportive and inclusive environment in the school |
| Theme 1: All of us | Communities in- and out-side the school Positive classroom environment Collaborative skills | Promotion of social and emotional competence among schoolchildren |
| Theme 2: You and me | Social relations Friendships Social and emotional competences | |
| Theme 3: Myself | Feelings, thoughts and personal experiences Signs of mental health problems How to help oneself and others | |
| Outro | Accomplishment of visions and goals for mental health Assure sustainability of <i>Up</i> | |

Table I.
Overview of themes,
perspectives and
goals of the
educational
material of *Up*

understanding of the importance of social relations was stimulated by classroom discussions in small groups on how school-rules may or may not contribute to the social cohesion. Finally, schoolchildren were encouraged to practice social action by promoting or changing the social climate in the classroom.

Up is inspired by the principle within school health promotion, where health and wellbeing is seen as a key to learning (St Leger, 2001; Paulus, 2005). The educational materials were designed to be integrated into the school's existing curriculum. When designing the materials curriculum requirements and goals for each subject, e.g. mathematics, were examined. Educational materials were developed in a way that ensured their ability to fulfil the goals of the subject whilst also promoting social and emotional competence. This way *Up* avoids increasing the time pressure on teachers who have many obligations already and also supports the overall goal of the Danish public school, which is to promote the well-rounded development of the schoolchildren by promoting their general development and not just their academic skills. This principle corresponds with a recent review of reviews, which found that interventions showed greater and longer lasting impact when mental health issues were integrated into the general classroom curriculum as opposed to when focused on in isolation (Weare and Nind, 2011).

Development of staff skills. The staff component in *Up* seeks to promote school staff's knowledge and competence in relation to mental health, and to prepare teachers to plan and implement the education component. Before the school year, a one day *Up* workshop for school staff was organised. The workshop consisted of presentations by the *Up* group followed by discussions, exercises and group work in small groups. The workshop provided school staff with knowledge about mental health promotion, the importance of a supportive and inclusive school environment, the principles of IVAC, how to deal with children with mental health problems, etc. It constituted the basis for staff involvement in planning activities and the implementation of *Up* during the following school year. The workshop also included guidance for teachers on how to use the educational materials. Besides the initial workshop, *Up* courses of three hours for the staff were held at the beginning of each new theme in order to maintain the school staff's focus on *Up* and assist them in implementing the intervention. Every teacher received a book with *Up*'s educational materials. The materials gave teachers opportunities to choose and plan from a variety of activities. This is especially important in a Danish context as the teachers are used to having a high degree of autonomy in the planning and execution of curriculum (Bjerg *et al.*, 1995).

Involvement of parents. Parents are an essential resource in promoting mental health among schoolchildren (Weare and Nind, 2011). The purpose of involving parents in *Up* is to create more awareness of children's mental health, provide information on mental health problems and promote the cooperation between school and home. Different strategies were applied to involve and meet as many parents as possible in *Up*. Parents were involved through information about *Up* via the school's intranet. During the school year parents were invited to *Up* events at the school, e.g. an exhibition of the children's visions of mental health in the school. Further, mental health promotion was discussed at annual parents-meetings. The educational materials also included assignments about mental health issues for children to bring home and discuss with their parents. Finally, parents were encouraged to participate actively in groups at the class- or school-level working with promoting mental health. This could, for example,

be implemented by appointing mental health ambassadors among the parents, with a special obligation to work with mental health promotion among children.

Initiatives in the everyday life of the school. A significant goal of *Up* is to promote a supportive and inclusive school environment that facilitates and contributes to the promotion of mental health. This component focuses on the social, physical and organisational environment, policies of the school, and initiatives based on existing efforts and structures in and around the school. To promote the school's ownership it is vital that the launched initiatives are chosen, planned and implemented by the schoolchildren, staff, principals and parents. Examples of initiatives in the everyday life of the school are formulating a mental health promotion policy, establishing a café for children to hang out in between and after-school hours, and after-school initiatives such as clubs or sports activities or redecoration of school grounds.

Ethical considerations

Up followed all Danish ethical requirements and was approved by the principals at the school.

It was expected that the focus on mental health in *Up* would reveal children with mental health problems, and it was important that the school and parents in collaboration with *Up* were able to refer these children to treatment or counselling. Schoolchildren, staff and parents were all given advice on spotting early signs of mental health problems and information on existing counselling services. Furthermore, *Up* tried to avoid victim blaming where responsibility for mental health is placed on the children themselves. By including all schoolchildren, school staff and parents through the whole school approach, the aim was that children's mental health became a shared concern for all included partners.

Costs of the intervention. It is important that the intervention fits with the school's needs and possibilities. Time use and costs can vary a lot from one school to another hence it is difficult to give an estimate of the overall costs of the intervention. As a minimum schools have had expenses related to teacher courses (approx. 23 hours/teacher, 15 hours/school psychologists), meetings for teachers that were part of the planning group (approx. ten hours/teacher, 20 hours/principal) and process help from *Up* facilitators (approx. three months/person). Teaching materials were developed by the *Up* project group and the schools did not have any expenses for this part.

Evaluation

Up was evaluated through questionnaires among schoolchildren before and after the intervention and through a process evaluation (Nelausen *et al.*, 2011). *Up* was seen as a programme development project and the intention was to learn about implementation processes and potentials for change. *Up* was not considered mature enough for testing in a rigorous controlled design, which is why there was no control group.

The before and after study. The schoolchildren in grades 5-9 answered the *Up* questionnaire during a school lesson before and after the intervention. The data collection followed the guidelines from the Health Behaviour in School-aged Children study (HBSC) (Roberts *et al.*, 2009) and was completely anonymous.

In Denmark, there is no agency for ethical approval of population-based surveys. The schoolchildren were informed that participation in the survey was voluntary and that the survey was anonymous: the survey did not collect data about the students' name, date of birth or other personal identification. The survey is registered by the Danish Data Protection Authority.

Data were collected about which school, grade and class each child belonged to, but it was not possible to follow each child individually as information on personal identification was not collected. The response rate was 96.2 per cent ($n = 589$) before the intervention and 83.9 per cent ($n = 532$) after the intervention.

Process evaluation. Besides the before and after study, a process evaluation was conducted. This evaluation provided valuable information about facilitating factors and barriers related to implementation. These results are referred to in the discussion. The process evaluation has not yet been published internationally, which is why this paper refers to the national report in Danish from the NIPH (Nelausen *et al.*, 2011).

Measurements in the before and after study. Social and emotional competence was measured before and after the intervention by an index developed by researchers at the NIPH, University of Southern Denmark. The index was inspired by Gresham and Elliott (1984) and comprises nine items with four response options (Table II).

Items were developed to cover three aspects of social and emotional competence: assertiveness, empathy and collaborative skills. Each response was dichotomized into “almost always” or “often” against all other options and assigned one point for every positively answered item. A child then obtained 0-9 points on the index. Based on conceptual considerations, children were classified as having high social and emotional competence when they had answered almost always or often to seven or more of the items in the index. The assumption was that it was not enough to score high on one or two of the indicators, a child needed to score relatively high on most of the indicators to be categorized with high social and emotional competence. Sensitivity analyses with a different cut off point (high defined as scoring 6-9) resulted in similar findings of statistical associations. The index was used both as a categorical variable dichotomized into high (7-9 points) and low (0-6) social and emotional competence, and as a continuous variable. In the index all items were inter-correlated with Spearman correlation coefficients between 0.09 and 0.33 and statistically significant p -values ($p < 0.01$). The standardized Cronbach’s α coefficient was 0.72.

Three socio-demographic variables were included in order to describe the study population: migration status, socioeconomic position and grade. Migration status was based on children’s and parent’s country of birth and categorized in two groups: native Danes (one or both parents born in Denmark); and non-native Danes (descendants and immigrants). Schoolchildren with missing information were included as native Danes as analyses showed that they spoke Danish as the main language at home (Nordahl *et al.*, 2011). Socioeconomic position was measured as Occupational Social Class (OSC)

| Item wording | Response options for all items |
|--|--------------------------------|
| 1. I speak my mind when somebody makes me angry | |
| 2. I speak my mind when I think something is unfair | |
| 3. I am good at controlling my temper in relation to my classmates | Almost never |
| 4. I try to understand my friends when they are sad or upset | Sometimes |
| 5. I ask my friends for help when I am in trouble | Often |
| 6. I try to get my classmates involved in my ideas | Almost always |
| 7. I participate calmly in class discussions | |
| 8. I ask adults for help if I get into trouble with other young people | |
| 9. I solve problems together with my classmates if we disagree | |

Table II.
Measurement of
social and emotional
competence

constructed from children's report about their parents' occupation. The research group coded the answers according to standards of the Danish National Institute of Social Research (Christensen *et al.*, 2014), which has many similarities with the UK Registrar General's classification. Each child was classified by the highest ranking parent and categorized into high OSC (I and II), medium OSC (III and IV), low OSC (V and economically inactive) and unclassifiable. Unclassifiable was kept as a separate category because they include a large group which the study did not want to leave out of the analyses. Grade was used as a proxy for age.

Statistical analyses. Contingency tables with χ^2 -tests (significance level of 0.05) were performed to report the prevalence (per cent) of high social and emotional competence before and after the intervention using the index and each item in the index. When dichotomizing into high and low social and emotional competence, change is only seen if children move from one category to the other. For the purpose of sensitivity analyses, mean values and standard deviations for social and emotional competence were therefore calculated before and after *Up*.

Results

Table III shows the distribution of included socio-demographic variables before and after *Up* in the study population.

The schoolchildren were fairly evenly distributed according to grade. The majority came from high or middle OSC families and most were native Danes.

Table IV shows the prevalence of children scoring high on the social and emotional competence index stratified by sex and age and the prevalence of children scoring high on each of the items in the social and emotional competence index stratified by sex, before and after *Up*.

In total our results showed that there was a change from 33.3 to 40.8 per cent of schoolchildren reporting high social and emotional competence on the index before and

| | Before <i>Up</i> (n = 589) | After <i>Up</i> (n = 532) |
|--|----------------------------|---------------------------|
| <i>Sex</i> | | |
| Boys | 53.8 | 53.4 |
| Girls | 46.2 | 46.6 |
| <i>Grade</i> | | |
| 5th | 20.5 | 20.3 |
| 6th | 21.6 | 22.6 |
| 7th | 18.3 | 20.1 |
| 8th | 22.4 | 19.9 |
| 9th | 17.2 | 17.1 |
| <i>Occupational social class (OSC)</i> | | |
| High | 52.6 | 53.2 |
| Medium | 25.0 | 22.0 |
| Low | 5.3 | 3.6 |
| Unclassifiable | 17.2 | 21.2 |
| <i>Migration status</i> | | |
| Native Danes | 92.4 | 91.4 |
| Non-native Danes | 7.6 | 8.6 |

Table III.
Study population
with distribution
(per cent) of sex,
grade, occupational
social class (OSC)
and migration status
before and after *Up*

Table IV.
Sex- and age-specific prevalence (percentage) of scoring high on the social and emotional competence index before and after *Up* and sex-specific prevalence (percentage) of scoring high on each of the items measuring social and emotional competence before and after *Up*

| | Girls | | Boys | | Total | |
|---|--|--|--|--|--|--|
| | Before <i>Up</i> (<i>n</i> = 272) | After <i>Up</i> <i>p</i> - value* (<i>n</i> = 248) | Before <i>Up</i> (<i>n</i> = 317) | After <i>Up</i> <i>p</i> - value* (<i>n</i> = 284) | Before <i>Up</i> (<i>n</i> = 589) | After <i>Up</i> <i>p</i> - value* (<i>n</i> = 532) |
| <i>Social and emotional competence index</i> | | | | | | |
| (high: 7-9) | | | | | | |
| 5th grade | 21.3 | 33.9 | 25.0 | 26.9 | 23.1 | 30.6 |
| 6th grade | 29.7 | 45.2 | 28.6 | 36.2 | 29.1 | 40.8 |
| 7th grade | 36.4 | 50.0 | 42.2 | 46.2 | 39.8 | 47.7 |
| 8th grade | 36.9 | 38.0 | 31.3 | 44.6 | 34.1 | 41.5 |
| 9th grade | 42.1 | 36.8 | 42.9 | 49.1 | 42.6 | 44.0 |
| Total | 32.4 | 40.7 | 34.1 | 40.9 | 33.3 | 40.8 |
| <i>p</i> -value for trend by grade** | 0.02 | 0.96 | 0.05 | 0.01 | 0.01 | 0.07 |
| <i>Social and emotional competence items</i> | | | | | | |
| (Often or almost always) | | | | | | |
| I speak my mind when somebody makes me angry | 47.4 | 59.7 | 50.2 | 61.3 | 48.9 | 60.5 |
| I speak my mind when I think something is unfair | 64.3 | 72.6 | 66.3 | 70.8 | 65.4 | 71.6 |
| I am good at controlling my temper in relation to my classmates | 72.8 | 79.4 | 71.0 | 69.0 | 71.8 | 73.9 |
| I try to understand my friends when they are sad or upset | 89.3 | 89.5 | 76.7 | 76.1 | 82.5 | 82.3 |
| I ask my friends for help when I am in trouble | 55.2 | 61.7 | 46.7 | 51.4 | 50.6 | 56.2 |
| I try to get my classmates involved in my ideas | 40.8 | 54.4 | 50.5 | 58.1 | 46.0 | 56.4 |
| I participate calmly in class discussions | 53.0 | 58.1 | 52.9 | 51.8 | 53.0 | 54.7 |
| I ask adults for help if I get into trouble with other young people | 25.7 | 24.2 | 24.3 | 26.4 | 25.0 | 25.4 |
| I solve problems together with my classmates if we disagree | 69.5 | 79.4 | 74.5 | 68.7 | 72.2 | 73.7 |

Notes: **p*-values calculated with χ^2 -tests (significance level of 0.05); ***p*-values calculated with Cochran-Armitage test for trend (significance level of 0.05)

after the intervention. This difference was statistically significant ($p = 0.01$). Stratified analysis among boys and girls showed a slight change from before to after for both sexes, although it was not statistically significant among boys ($p = 0.09$) and borderline significant for girls ($p = 0.05$). The prevalence of high social and emotional competence seemed to increase with age for both sexes (Table IV). As an example the prevalence of high social and emotional competence was 23.1 per cent among children in fifth grade and 42.6 per cent among children in ninth grade ($p = 0.01$) in the total study population before *Up*. Table IV also show that the change in social and emotional competence was largest among children in the lower grades compared to higher grades. However, the change was only statistically significant for sixth grade ($p = 0.05$).

There is another way to read Table IV, namely to compare the after result at one grade with the before result at the next grade level. Thereby, the development of social and emotional competence with increasing age is taking into account. Table IV shows that the prevalence of high social and emotional competence seemed to be higher for some grades, e.g. seventh grade after *Up* (47.7 per cent) that are due to become eighth grade next school year, compared to the prevalence in the higher grade before *Up*, e.g. eighth grade before *Up* (34.1 per cent). However, none of these comparisons reached statistical significance (data not shown).

When studying the items separately, we found there was an overall positive change in almost all items. The change was only statistically significant for the items I speak my mind when somebody makes me angry ($p < 0.01$), I speak my mind when I think something is unfair ($p = 0.02$) and I try to get my classmates involved in my ideas ($p < 0.01$). There were some sex differences: more girls than boys scored high on the item I try to understand my friends when they are sad or upset ($p < 0.01$). For boys there seemed to be a change in relation to many items. The only statistically significant change though was for the item I speak my mind when somebody makes me angry ($p = 0.01$). For girls there was a change on most items. The difference from before to after was statistically significant in relation to the items I speak my mind when somebody makes me angry ($p = 0.01$), I speak my mind when I think something is unfair ($p = 0.04$), I try to get my classmates involved in my ideas ($p < 0.01$) and I solve problems together with my classmates if we disagree ($p = 0.01$).

Comparison of mean values before and after *Up* is shown in Table V. The mean of the index of social and emotional competence was 5.15 (SD = 2.31) before *Up* and 5.55 (SD = 2.49) after *Up* ($p = 0.01$). Looking at each item (Table V), the differences from before to after *Up* did not reach statistical significance except for the item I ask my friends for help when I am in trouble ($p = 0.03$).

Table VI shows that the change in prevalence of high social and emotional competence was larger in the lower socioeconomic groups compared to the high OSC group. Due to the small numbers of schoolchildren in the low and unclassifiable groups, we merged the medium, low and unclassifiable OSC group to one, and found a statistical significant positive change in social and emotional competence from 25.8 per cent before *Up* to 39.8 per cent after *Up* ($p < 0.01$) (data not shown).

Discussion

Our analysis showed that approximately one-third of the participants had a high degree of social and emotional competence at baseline. We found a statistically significant change from baseline to the one-year follow up, from 33.3 to 40.8 per cent ($p = 0.01$). Social and emotional competence seemed to increase with age and the change in competence before and after *Up* appeared to be larger among children in the lower

Table V.
Mean (SD) of the social and emotional competence index before and after *Up* and mean (SD) of each of the items measuring social and emotional competence before and after *Up*

| | Before <i>Up</i> mean (SD) (<i>n</i> = 589) ^a | After <i>Up</i> mean (SD) (<i>n</i> = 532) ^a | <i>p</i> -value* |
|---|--|---|------------------|
| Social and emotional competence index (range 0-9) | 5.15 (2.31) | 5.55 (2.49) | 0.01 |
| Social and emotional competence items (range 1-4) | | | |
| I speak my mind when somebody makes me angry | 3.04 (1.18) | 3.16 (1.08) | 0.09 |
| I speak my mind when I think something is unfair | 3.18 (1.00) | 3.26 (0.97) | 0.18 |
| I am good at controlling my temper in relation to my classmates | 3.54 (0.97) | 3.49 (0.95) | 0.36 |
| I try to understand my friends when they are sad or upset | 3.50 (0.79) | 3.57 (0.81) | 0.16 |
| I ask my friends for help when I am in trouble | 2.81 (1.11) | 2.95 (1.08) | 0.03 |
| I try to get my classmates involved in my ideas | 2.93 (1.17) | 3.00 (1.09) | 0.31 |
| I participate calmly in class discussions | 2.97 (1.14) | 2.94 (1.14) | 0.65 |
| I ask adults for help if I get into trouble with other young people | 2.41 (1.38) | 2.43 (1.40) | 0.76 |
| I solve problems together with my classmates if we disagree | 3.40 (0.93) | 3.47 (0.93) | 0.25 |

Notes: ^aBecause of variance in number of students with missing information on the social and emotional competence items (ranging from 10 to 24 students) the *n* is reported as a maximum. **p*-values calculated with *t*-test (significance level 0.05)

Table VI.
Prevalence (percentage) of scoring high on social and emotional competence index by occupational social class (OSC) before and after *Up*

| | Before <i>Up</i> (<i>n</i> = 589) | After <i>Up</i> (<i>n</i> = 532) | <i>p</i> -value* |
|--|------------------------------------|-----------------------------------|------------------|
| <i>Occupational social class (OSC)</i> | | | |
| High | 40.0 | 41.7 | 0.67 |
| Medium | 22.5 | 36.8 | 0.01 |
| Low | 29.0 | 52.6 | 0.10 |
| Unclassifiable | 29.7 | 40.7 | 0.09 |

Note: **p*-Values calculated with χ^2 -tests (significance level of 0.05)

grades. Sensitivity analyses which treated the index as a continuous variable also showed a statistically significant change in social and emotional competence from 5.15 (2.31) before *Up* to 5.55 (2.49) after *Up* ($p = 0.01$). When studying each dichotomised item in the index separately, we found a change in most items though only statistically significant for the items I speak my mind when something upsets me ($p < 0.01$), I speak my mind when I think something is unfair ($p = 0.02$) and I try to get my classmates involved in my ideas ($p < 0.01$). When comparing means of the items, there seemed to be a positive change for most items, but the only statistical significant change was for the item I ask my friends for help when I am in trouble ($p = 0.03$). Furthermore, we found that the change in high social and emotional competence was remarkably larger among schoolchildren from lower socioeconomic groups compared to schoolchildren from the high socioeconomic group. All in all our results suggest that *Up* has had a positive impact on social and emotional competence.

Larger scale school-based interventions aimed at promoting social and emotional competence among schoolchildren have, until now, not been carried out in Denmark. We considered *Up* as a programme development project. The intention was to learn

about implementation processes and potentials for change. *Up* builds on experiences from countries, where the school systems vary a lot from the Danish, meaning that we could not necessarily expect to produce the same successful results. Our findings suggest that *Up* has potential to increase social and emotional competence among Danish schoolchildren, and it has provided valuable experiences as a basis for future interventions adapting the evidence-based recommendations of mental health promotion into the Danish school system.

Within Europe and Australia the development of whole school approach interventions has been influenced by the WHO's settings approach (Weare and Nind, 2011). According to Weare and Nind (2011) the European and Australian style tend to promote "bottom-up" principles like democracy, local ownership and empowerment (Schools for Health in Europe, 2014; Department of Education, 2014; Paulus, 2009; KidsMatter, 2014; MindMatters, 2014; Act-Belong-Commit, 2014). This flexible style emphasizes user involvement and is, according to Weare and Nind (2011), in contrast to the US style, which can be considered a "top-down" approach with prescriptive training and strict requirements for fidelity. *Up* is inspired by the European and Australian style and can be characterized as an enabling framework that allows some local adaption in the participating schools (Weare, 2011). Furthermore, *Up* builds on the principles of HPSs stating that initiatives should be relevant for schoolchildren and based on the needs of the schools (Macnab, 2013).

So far there is no standardized approach in measuring social and emotional competence, and Durlak *et al.* (2011) call for theory-driven research to develop accurate assessment and to identify how different competences are related. In this study we used a measure of social and emotional competence inspired by Gresham and Elliott (1984) that has shown good reliability and validity and has been applied in an earlier wave of data collection for the Danish HBSC Study.

We rely on self-reported data, which we consider to hold the most valid information when studying schoolchildren's mental health. We are interested in the schoolchildren's own perception of their social and emotional competence, not an assessment by others.

Limitations

The change in social and emotional competence was measured before and after the intervention in two intervention schools but without randomization and control schools. Our results may not be generalizable. Although *Up* targeted all children in the schools, the change in social and emotional competence was only measured among schoolchildren in grades 5-9. Answering a questionnaire requires a certain level of reading and interpretation skills, and we were not able to measure change in social and emotional competence among the younger schoolchildren. This may have introduced selection bias, as the process evaluation indicated that the highest degree of implementation was seen among the youngest schoolchildren that were not included in the survey (Nelausen *et al.*, 2011). If this is true, we might have underestimated the change in social and emotional competence. Prospectively, it would be advantageous to also measure social and emotional competence among the younger children by applying methods suitable for these age groups. Among schoolchildren in grade 5-9 response rates were high. Even though non-responding children may have lower levels of social and emotional competence, it is unlikely that this will affect our results regarding change in high social and emotional competence.

Up was developed in collaboration between the Danish MHF and the Child and Adolescent Health Research Group at the NIPH, University of Southern Denmark. A limitation of the study is that the evaluators were also involved in planning the

intervention. As *Up* was seen as a development project it was important for the team behind *Up* to be involved in all steps of the intervention in order to learn about the implementation process and potentials for change.

Implications for future research

An important implication for future research is related to the development of social and emotional competence. Social and emotional competence usually improves with increasing age as social and emotional competence develops through everyday experiences with surroundings and the people in them (Bruner, 1998). This was also seen in our survey where social and emotional competence seemed to increase with age. Within this study design with no control group it is difficult to know whether improvement in social and emotional competence among schoolchildren involved in *Up* is due to the intervention or if it is merely an expression of general improvements due to the fact that the children have grown older during the intervention period. However, we were able to use the baseline sample before *Up* as a comparison group (e.g. comparing fifth graders after *Up* that are due to become sixth graders next school year and who are therefore almost the same age as sixth graders in the baseline sample). It seemed that for some grades the prevalence of social and emotional competence after *Up* was higher than expected by the predicted increase because of age itself. This observation suggests that social and emotional competence is not static but can be promoted and improved through intervention. However, this needs to be tested in larger studies with control groups.

We lack information about exposure to the *Up* training that might help clarify whether the improvement in social and emotional competence was related to *Up*. Nor did we gather information about other initiatives in and around the school that could be potential sources of such competence.

Up was implemented in two schools characterized by a majority of native Danes from upper- and middle-class families. Future research should study the implementation and effect of *Up* in schools that are situated in areas with another social and demographic composition.

In order to be able to expand *Up* to many schools during the same school year it is important to invest in more research on how the intervention can be implemented effectively using as few resources as possible. This is in line with the recommendations for large-scale and universal interventions to be implemented in real life circumstances (Weare and Nind, 2011). To build a sustainable intervention method, *Up* was incorporated into the schools' existing curriculum by building the materials around the existing goals and purposes of each subject. Thereby *Up* has the potential to serve as a help to teachers rather than an extra burden.

Implications for practice

The implementation of school-based initiatives is a difficult task and more research into implementation and sustainability is needed. Many initiatives fade when project funding ends and more knowledge is needed on how to secure sustainability of interventions (Scheirer, 2013). A suggestion to secure effectiveness and sustainability is to use implementers already involved in the life of the school such as teachers and parents instead of using specialist staff to implement interventions. Another suggestion could be to educate *Up* facilitators at the school with responsibility of sustaining *Up* and passing it on to new teachers. A notable implication for practice is

related to teachers' knowledge of mental health promotion. Mental health is not part of the teacher training curriculum in Denmark. The process evaluation of *Up* showed that many teachers did not know how to engage in mental health promotion and found it difficult to talk to the children about mental health problems (Nelausen *et al.*, 2011). It would be advantageous to incorporate topics on mental health promotion as part of the education to become a teacher. The process evaluation also showed that teachers found it important to promote schoolchildren's social and emotional competence and that *Up* was an initiative that they appreciated and found useful in regards to building their competence to include mental health promotion in their teaching practices (Nelausen *et al.*, 2011).

Many studies report socioeconomic inequality in mental health among schoolchildren, i.e. an increasing prevalence of mental health problems by decreasing family socioeconomic position (Reiss, 2013). This study showed that *Up* was successful in reducing socioeconomic inequality in social and emotional competence as we found the positive change in high social and emotional competence to be largest among schoolchildren from lower socioeconomic groups. Consistent with the Odense statement (The 4th European Conference on Health Promoting Schools, 2013), we recommend future studies to address whether school-based mental health promotion influences the social variations in mental health problems.

This study suggests that *Up* has the potential to promote schoolchildren's mental health and reduce socioeconomic differences in mental health. It should be expanded to include more schools and improve the social and emotional competence of even more children. In future studies it would be advantageous to include a control group in the design. Finally, it is important to collect more experiences about how to implement affordable and effective interventions like *Up*.

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