

JYU DISSERTATIONS 184

Pauliina Parhiala

The role of learning difficulties and brief treatment for student well-being



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF EDUCATION AND
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ABSTRACT

Parhiala, Pauliina

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The present research examines student well-being, its link to learning difficulties, and the application of a brief depression treatment at school in Finland. Changes in psychosocial functioning at ages 4, 6, and 9 (social skills, inattention, and externalizing and internalizing problems) were compared between 200 children either with and without dyslexia through the transition into school. The next step was to examine student well-being ($N = 1,629$) at the end of their basic education using a person-centered approach: profiles of various school motivation and emotional well-being variables and their links to basic academic skills (reading and math) were studied. A further aim was to determine the effectiveness, acceptability and feasibility of early depression treatment at school as part of an intervention study. Interpersonal counseling (IPC) was compared with brief psychosocial support (BPS) in student welfare services, including six weekly sessions and two follow-up meetings. Students from junior high school who were seeking help for depressive symptoms (mild to moderate depression) were included in the study ($n = 55$). The effectiveness of the two treatments was compared, and adolescents' and counselors' satisfaction with the treatment was assessed. Study I indicated that, before school entry, children with dyslexia were already rated as having poorer social skills and more inattentiveness than typical readers. Gender-specific interactions with dyslexia emerged as well. In Study II, five distinct profile groups emerged; three had a flat profile in motivation and well-being but at different high, average or low levels, and two groups had mixed profiles. A comparison with basic academic skills illustrated that low school motivation was linked to poor basic academic skills, whereas the link with emotional well-being was more indirect. Brief treatments at school indicated that both IPC and BPS were effective in reducing depressive symptoms, improving overall functioning and well-being. Adolescents and counselors in both groups were satisfied with the treatments. Thus, the transition into school, on its own, does not seem to increase problems in psychosocial functioning. However, during adolescence the associations between well-being and learning vary. Brief, structured treatments, such as IPC and BPS, are beneficial in treating depression and are feasible in school settings.

Keywords: student well-being, basic academic skills, learning difficulties, brief treatment, depression, longitudinal study, person-oriented approach, intervention study, student welfare

TIIVISTELMÄ (FINNISH ABSTRACT)

Parhiala Pauliina

Oppimisvaikeuksien rooli ja lyhythoito oppilaan hyvinvoinniksi

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Kolmessa tutkimuksessa tarkasteltiin oppilaan hyvinvointia ja sen yhteyttä oppimisvaikeuksiin sekä mahdollisuuksia käyttää lyhythoitoa masennukseen osana koulujen oppilashuollon palveluita. Ensimmäinen osatutkimus aloitettiin vertaamalla psykososiaalisen hyvinvoinnin muutoksia 200 tyypillisesti lukevan ja lukemisen vaikeuksia potevan lapsen välillä läpi koulusiirtymän ikävuosina 4, 6 ja 9. Myös sukupuolen vaikutus huomioitiin. Lukivaikeus todettiin 8 vuoden iässä. Seuraavaksi tutkittiin profiilianalyysin avulla oppilaiden hyvinvointia peruskoulun viimeisellä luokalla sekä hyvinvoinnin yhteyttä oppimisvaikeuksiin ja akateemisiin taitoihin. Viimeiseksi tarkasteltiin varhaisen ja lyhyen masennushoidon tehokkuutta, hyväksyttävyyttä sekä soveltuvuutta kouluun. Interventiotutkimuksessa interpersoonallista ohjantaa (IPC) verrattiin lyhyeen psykososiaaliseen tukeen (BPS) oppilashuollon palveluissa. Tutkimukseen otettiin mukaan lievistä keskivaikeaan masennukseen apua etsivät yläkoulun oppilaat. Tutkimuksessa selvitettiin nuorten masennusta, toimintakykyä ja yleistä hyvinvointia sekä nuorten ja ohjaajien tyytyväisyyttä hoitoon. Pitkittäistutkimuksen tuloksena huomattiin, että lapsilla, joilla oli lukivaikeus, oli psykososiaalisen hyvinvoinnin ongelmia jo ennen kouluikää. Lukivaikeuden ja psykososiaalisen toiminnan välinen yhteys oli erilaista tyttöillä ja pojilla. Toisessa osatutkimuksessa löydettiin 5 erilaista hyvinvoinnin profiiliryhmää: kolme profiileista oli kokonaan korkealla, keski- tai matalalla tasolla, kun taas kaksi profiileista oli eritasoisia emotionaalisen hyvinvoinnin ja koulumotivaation suhteen. Yhteys akateemisiin taitoihin vaihteli: heikko motivaatio oli suoraan yhteydessä heikkoihin akateemisiin taitoihin, mutta heikon emotionaalisen hyvinvoinnin yhteys akateemisiin taitoihin oli epäsuora. Lyhythoidon (IPC ja BPS) käyttö koulujen oppilashuollossa, oppilashuollon työntekijöiden toteuttamana, osoittautui tehokkaaksi masennusoireiden lieventämisessä. Nuoret ja ohjaajat olivat tyytyväisiä hoitoon ja lyhythoito osoittautui soveltuvaksi työmuodoksi oppilashuoltoon. Koulun aloittaminen ei näytä lisäävän psykososiaalisen hyvinvoinnin ongelmia lapsilla, joilla on lukemisen vaikeutta. Hyvinvointi näyttäytyi moninaisena nuoruudessa, yhteys akateemisiin taitoihin tuli näkyväksi eri tavalla riippuen hyvinvoinnin osa-alueiden tasosta. Lyhyt, strukturoitu hoito näyttää olevan hyödyllinen masennuksen hoidossa ja sovellettavissa koulun oppilashuoltoon, koulun resurssit huomioiden.

Avainsanat: oppilaan hyvinvointi, oppimisvaikeudet, lyhythoito, masennus, pitkittäistutkimus, profiilianalyysi, interventiotutkimus

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The road that describes my journey up to here has been full of roadworks, detours and turnouts, which have sometimes nearly led me away from my path. At times, I could only see the next curve or slope and thought I would never get this far, but somehow I am about to cross the finish line. I have started to understand the importance of the entire exhausting and intense journey; all the roadworks, detours and turnouts have also led to huge growth for me as a researcher.

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- I Parhiala, P., Torppa, M., Eklund, K., Aro, T., Poikkeus, A-M., Heikkilä, R., & Ahonen, T. (2015). Psychosocial functioning of children with and without dyslexia: A follow-up study from ages four to nine. *Dyslexia*, 28, 1731–17
- II Parhiala, P., Torppa, M., Vasalampi, K., Eklund, K., Poikkeus, A-M., & Aro, T. (2018). Profiles of school motivation and emotional well-being among adolescents: Associations with math and reading performance. *Learning and Individual Differences*, 61, 196–204.
- III Parhiala, P., Ranta, K., Gergov, V., Law, R., La Greca, A-M., Kontunen, J., Torppa, M., & Marttunen, M. (2019). Interpersonal counseling in the treatment of adolescent depression. A randomized controlled effectiveness and feasibility study in school health and welfare services. *School Mental Health*. (in press)

Taking into account the comments and instructions given by the co-authors, the author of the present dissertation wrote the original research plan, conducted all parts of the qualitative and quantitative analyses, and wrote the reports of the three publications.

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1 INTRODUCTION

School is a central developmental context during childhood and adolescence (Eccles & Roeser, 2011; OECD, 2017). It shapes students' future careers and occupations as well as their lifelong health and well-being (e.g., Murray, Holmes, Perron, & Rail, 2007). As school experiences have a marked influence on student well-being, one of the main targets of education should be appraising well-being along with learning-related goals (e.g., Patalay, Giese, Stanović, Curtin, Moltrecht, & Gondek, 2016; World Health Organization WHO, 1997).

The importance of well-being at school on one's success later in life was acknowledged, for example, in the latest Program for International Student Assessment (PISA) report (OECD, 2017). A similar movement toward emphasizing well-being at school has occurred in Finnish educational policy. The new national core curriculum highlights the importance of students' interest, motivation, enjoyment, and emotional well-being in learning (OPH, 2014). In a similar vein, the new student welfare law highlights the importance of students' well-being as well as the well-being of the whole school community (Student Welfare Act 1287/2013). According to the new school health and welfare questionnaire every three to four of all students in total are satisfied with their life and enjoy going to school, the trend has been similar for a decade (Ikonen & Helakorpi, 2019). Therefore, it seems that most of the students are feeling well at school and the idea of the national core curriculum appears to be mostly fulfilled.

At the same time, concern about those who are not well at school is rising. Recent reports from Finland have brought forth the most worrying aspects. Over one-third of all children and adolescents in Finland feel detached from school (Halme, Hedman, Ikonen, & Rajala, 2018), and up to 15% of students feel low cohesion at school (Välijärvi, 2017). One-fourth of Finnish elementary school students show signs of school burnout (i.e., mostly cynicism), and 5% are already burned out (Salmela-Aro, Muotka, Alho, Hakkarainen, & Lonka, 2016). The new national report collects together today's challenges a child encounters and resources a child may draw from in Finland (Hämäläinen, 2019), and considers the underlying reasons for child and adolescent well-being or the lack thereof. Simi-

larly, daily changing news items about student well-being paint a picture of common worries, for example: every tenth of adolescents is using specialized mental health services and the amount is increasing every year (Nuotio, 2018). At the same time, serious endeavors are being made to find ways to deal with the increasing problem of the lack well-being in education; for example, ways or methods to appraise well-being in education are increasing, yet a common or shared way to deal with the issue in schools is still lacking (Anttila, Huurre, Malin & Santalahti, 2016).

It is well known that both poor well-being and difficulties in learning or the lack of basic academic skills may underlie later negative development (Notkola et al., 2013) and is linked to school leaving (e.g., Janosz, Archambault, Morizot, & Pagani, 2008). Since 2015, the OECD's reports on adolescents not in education, training, or employment, covering all OECD countries, was alarming (Organisation for Economic Cooperation and Development OECD, 2015). Government acts in Finland provide some degree of hope, as the number of such adolescents has decreased somewhat (Opetus- ja kulttuuriministeriö OKM, 2019). However, there are still examples of those who are not feeling well at school (Gretschel & Myllyniemi, 2017). It seems that the gap between the extremely high achievers and the extremely low achievers has become wider. In order to tackle problems related to a lack of well-being among Finnish students, more knowledge about the associations between learning and different aspects of school well-being is needed, as well as regarding the school's role in offering intervention methods before the queue of students waiting for specialized health care services becomes even more visible in school hallways.

The focus of this dissertation is twofold. The first is a study of the associations between student well-being and learning at different ages. The second examines the effectiveness, acceptability and feasibility of a brief treatment conducted in school welfare services. The first aim is entangled with two studies, one focusing on the early school years (i.e., the phase of transition from kindergarten to school), and the other on adolescence (i.e., the last year of basic education). The third study addresses the second aim.

As awareness of the role of learning difficulties in student well-being is important to be able to obtain a better understanding of the associations between well-being and learning, the early developmental period needs to be explored. Studies focusing on the transitional phases (e.g., from kindergarten to school) shed light on the mechanisms underlying such associations as these phases are developmentally significant and their analysis makes it easier to capture changes (e.g., Dockett & Perry, 2007; Einarsdóttir, 2007). Capturing the time period before school-related learning happens is comparatively vital as it is a period when school-oriented learning experiences have not yet impacted well-being. Unfortunately, previous studies focusing on the links between well-being and learning have mostly concerned children already in school and are cross-sectional rather than longitudinal. Therefore, knowledge about the impact of school on learning-related aspects remains unclear. As such, it is impossible to capture whether problems with well-being coincide with learning difficulties early on or emerge

as secondary reactions to learning difficulties experienced in school. If problems with well-being were to be identified among children prior to school entry who later have learning difficulties, then this would imply, at the very least, that the later problems are not necessarily a consequence of difficulties experienced in learning to read at school. However, if problems with well-being increase only after school entry, specifically among children in school showing learning difficulties, then this would suggest that the problems in well-being are indeed possible reactions to the demands at school (e.g., sad feeling about not learning as easily as others). Therefore, to add to the current knowledge regarding the links between learning difficulties and children's well-being in relation to their transition to school, Study I of this dissertation used a longitudinal study design to explore and compare the well-being among children, aged 4–9 years, with and without learning difficulties.

Early development is a vital time for consideration when trying to understand a causal association between learning and well-being. As a child grows up, different aspects have time to impact on that association, making the link between learning difficulties and well-being more complex and featuring multiple layers. The final year of basic education is a time when adolescent development is in progress and students need to make important decisions concerning their future studies. For instance, only 60% of junior high school students reported enjoying going to school, whereas that percentage was higher before and after that period (Ikonen & Helakorpi, 2019), highlighting learning experiences being perceived less positive in junior high school. Thus, the link between learning outcomes and well-being may also involve other surrounding factors.

When educational tasks are simple, a student may learn and feel well even if struggling with learning; however, as the learning material gets more complex and requires more and more effort, the student may get tired. The teacher might see only the tiredness, not the underlying difficulties with basic academic skills and how the association to a lack of well-being has developed into exhaustion – or vice versa. Problematic situations encountered at school are rarely simple and identifying such complexities is not an easy task. However, we know from prior studies that the links between learning and well-being are rarely similar between students, rather varying from individual to individual (Korhonen, Linnanmäki, & Aunio, 2014; Roeser, Eccles, & Sameroff, 1998). Such links are not easy to ascertain even in research, especially if the focus is only on whole sample averages or correlations; and while elevating those with learning difficulties, it is often the lack of well-being of those without such difficulties that remain unnoticed. Using an individualized, person-oriented approach, clearer picture may appear. Accordingly, in Study II of this dissertation, a person-oriented approach was used to study a large sample of adolescents during their final year in basic education in order to examine profiles of well-being and their possible links to basic academic skills and learning difficulties. Profiling several aspects simultaneously provides a more comprehensive understanding of the mechanisms behind the accumulation of risks, identifies adolescents at the highest risk, and thus aids in building support systems.

Concerning student well-being, multiple previous studies tell the same story: problems affecting well-being increase tremendously during adolescence (age 13–22). In fact, about half of all lifelong mental health disorders begin prior to age 14, and students are the most likely to suffer from depressive symptoms (Gore et al., 2011; Hankin et al., 1998; Marttunen & Karlsson, 2014). Accordingly, one can expect there to be several depressed adolescents in nearly every classroom. Studies concerning well-being at school highlight the importance of screening for possible problems. However, internalizing problems most often remains unnoticed to others as it generally does not cause problems in the classroom (McIntosh, Ty, & Miller, 2014); however, in a worst case scenario they may even lead to self-harming behavior (e.g., Hawton, Saunders, & O'Connor, 2012) or turn into recurrent depressive episodes (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015). Thus, ways to prevent such depressive states early on are needed, preferably before the symptoms become severe (Bertha & Balázs, 2013). Targeted individual prevention is suggested for use at school, but structured interventions are uncommon (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). Study III of this dissertation explored whether a brief structured treatment is an effective and acceptable intervention for adolescents suffering from depression, and whether it is feasible as part of Finnish student welfare services.

Accordingly, this dissertation seeks to provide a better understanding of students' well-being and its link with learning difficulties by taking into account the early, developmentally significant period (ages 4 to 9) as well as another important period, the time prior to the transition to the more individually chosen upper secondary education. Understanding the link between learning difficulties and well-being helps in developing support systems, improves knowing whether it is better to intervene in learning-related issues or to focus more on well-being, and makes it easier to know when would be the best time to intervene. Another aim was to explore how to intervene in student well-being early on, at school. The effectiveness, acceptability and feasibility of a brief treatment for adolescent students already suffering from major depressive disorder (MDD) was under exploration.

In sum, in this dissertation, my intention is to bring up and highlight aspects related to student well-being; mainly, the possible underlying association with learning difficulties and basic academic skills, associations between multiple well-being variables, and the importance of mental health at school in both the students and school personnel, as well as is it possible to intervene or treat disorders using structured methods in student welfare services. Student well-being is a broad concept and cannot be separated from the wider social and cultural environment of a student's life or from the prior life history a student is carrying. Instead of going more deeply into those surrounding aspects, this dissertation focuses on the aspects seen from the educational point of view and considering what improvements are possible at the school level. My intention is to highlight the importance of student well-being at school, the role of basic academic skills in student well-being, and to consider what aspects need to be noticed at school concerning students' well-being. Systems at school should evolve and be ready

to adapt to the demands of the environment in which today's students are living. It seems that student well-being is a commonly discussed subject nowadays, where all have target of improving it but the way to hit the target varies as much as individuals do. It is my intention to remind that no matter what is going on in students' lives, school is a big part of that picture; it is impossible to remove the school's role from well-being or the fact that the problems a student has are also present at school.

1.1 Student well-being

Well-being is essential for all of us. Approaches to conceptualizing it have varied from hedonic searches for a more pleasurable life through a subjective pursuit of happiness and pleasure (Diener, 1984; Kagan, 1992) to eudaimonic pursuits toward finding meaning in life and reaching one's full potential (Ryff, 1989). However, a unanimous definition has not been reached. Nowadays, different descriptions have been used to define well-being depending on the context, such as environmental (e.g., Morris & Saunders, 2017), economic (Fuentes & Rojas, 2001), or social (Keyes, 1998) ones to cover all aspects of healthy and successful living (e.g., Renshaw, Long, & Cook, 2015). Subsequently, the definitions are numerous and partly contradictory. Additionally, everyone has his or her own personal view about it. In consideration of that, in this dissertation, I have adopted the approach where well-being is understood as a meta-construct, depicted in Figure 1. I have aimed my focus on well-being in the school context, where some of the variables of well-being are more directly connected to the school, while some of the variables are more general in nature. From this viewpoint, student well-being comprises the ability to perform well socially and accomplish daily demands (i.e., psychosocial functioning; Schorre & Vandvik, 2004), balance one's emotional experiences in terms of intensity and quality (i.e., emotional well-being; Kahneman & Deaton, 2010), and satisfy one's own basic psychological needs and desires in the school environment (i.e., school motivation; Deci & Ryan, 2012).

Hence, well-being at school is conceptualized as psychosocial functioning, emotional well-being, and school motivation. Psychosocial functioning features behaviors that are very visible at school (i.e., attention skills) and is also important for learning, whereas emotional well-being is tapping into inner feelings related to school and to the wider developmental environment. School motivation includes behavior directly influencing learning behavior, but takes into account both inner emotion (i.e., school enjoyment) and visible behavior (i.e., task-focused behavior). Basic academic skills and learning difficulties are reciprocally related to student well-being. For example, low math motivation may directly influence task-focused behavior and further learning (Klauda & Guthrie, 2015). All together, these concepts formulate student well-being. As described in Figure 1, a student may have high literacy motivation, but he or she may have developed burnout because of high amounts of schoolwork and have low self-esteem, yet

nevertheless, at the same time, he or she may be socially cooperative and adaptive and normally have no difficulties with learning. Therefore, when evaluating student well-being those variables related to learning may not tell the whole story.

The concepts include both positive and negative items, capturing separate and overlapping factors in student well-being, illustrating not only opposite sides since positive terms may be posited along the same continuum as negative terms and vice versa; that is, although positive and negative factors each have their own continuum they are also related (e.g., a dual-factor, two-continua or bi-dimensional model; Renshaw, Eklund, Bolognino, & Adodo, 2016; Suldo & Shaffer, 2008). Furthermore, student well-being is not a stable condition; it fluctuates according to environmental changes, developmental changes, various individual characteristics, and feedback from the environment. Figure 1 does not directly take into account the impact of students' wider social, interpersonal or physical environment, rather the conceptualization concentrates on individual aspects related more directly to school, although some of the concepts are also more general in nature. It addresses students' important developmental life phases, that is: both as small children and adolescents. Student well-being is approached from three angles: the development of children's well-being and the link with learning difficulties; examining individual profiles of student well-being and their links to basic academic skills; and conducting an intervention study exploring the use of two brief treatment methods in student welfare services. Hence, this conceptualization draws a picture of student well-being used in this dissertation. Next, I will elaborate each of these hypernyms more closely.

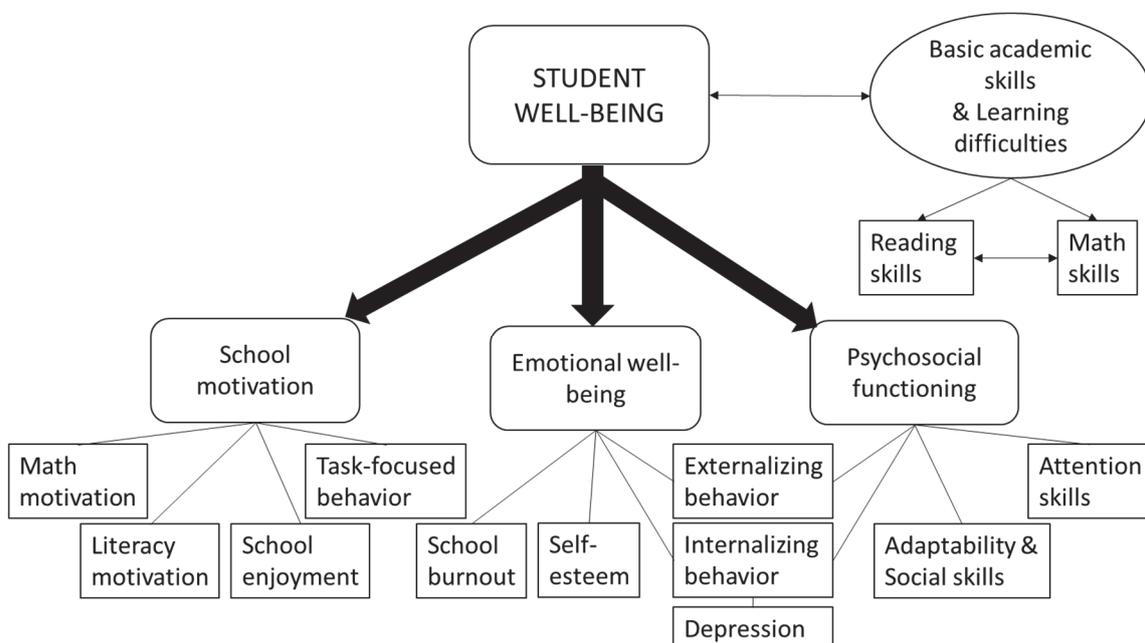


FIGURE 1 Conceptualization of the student well-being in this dissertation.

1.1.1 Psychosocial functioning in the school context

Psychosocial functioning is related to one's psychological development, reflecting a person's ability to perform the activities of daily living and engage in relationships with other people in ways that are gratifying for him- or herself and others, and which meet the demands of the community where the individual lives (Schorre & Vandvik, 2004). Psychosocial functioning is therefore needed in daily life in all environments. In this dissertation, variables assessing children aged 4 to 9 were adaptability and social skills, attention skills, externalizing and internalizing behavior.

Social skills and adaptation refer to the ability to make friends and maintain friendships (Greenham, 1999); it is also an ability to behave according to social norms (Abdi, 2010). Social skills are related to popularity among same-age peers (Becker & Luthar, 2007), affecting feelings in a peer group. Adaptation and social skills are important for success in school (Gerbino et al., 2018) and in later life beyond school (Farrington et al., 2012). Attention skills are frequently needed at school; during lessons, attention needs to be directed into essential features as well as controlled to maintain a student's awareness during teaching. Attention skills are essential for learning and, therefore, needed to feel psychosocially well at school (e.g., Willcutt & Pennington, 2000a). Externalizing behavior refers to conduct problems and aggressive or impulsive behavior, whereas internalizing behavior refers to withdrawal, depression, anxiety, and somatic problems (Achenbach & Edelbrock, 1978). Both are important in terms of psychopathology, examining normal and abnormal development (Eme, 2017; Hinshaw, 1992). They are also important in the school context as they may lead to poor school attendance, poor school performance, and dropping out (e.g., Baker, Grant, & Morlock, 2008; Ladd, Birch, & Buhs, 1999).

Most of the psychosocial functioning variables are easy for teachers to catch during lessons; interventions for tackling inattention or aggressive behavior are readily offered at the school level. It has been reported that teachers are compelled to action as disruptive behavior makes teaching more difficult (e.g., McIntosh et al., 2014). Finnish basic education has been changing a lot over the last ten years. One of the biggest changes has been in special education with the abolishment of separate special education classrooms in order to improve inclusion. A beautiful idea of equality, where all students are in the same classroom following individual learning paths; however, the resources to maintain high-quality education have not developed and students may not get the support they need (OAJ, 2017). These kinds of learning environments require high psychosocial functioning, and problems in psychosocial functioning may therefore become even more visible to teachers.

Psychosocial functioning, comprising all of the aforementioned aspects, was scrutinized in Study I, where the focus was on retrospectively exploring whether changes in psychosocial functioning occurred across the school transition among students who encountered learning difficulties in comparison to students without struggling in learning during their early school years. Therefore,

under analysis were both children with and without dyslexia (i.e., reading difficulty), who were followed from age 4 through the transition to school until age 9. As dyslexia has a negative impact on learning to read, write and comprehend reading content, it has been suggested that these negative experiences a student may encounter during learning situations can have a negative influence on psychosocial functioning (e.g., Dahle, Knivsberg, & Andreassen, 2011; Morgan, Farkas, & Wu, 2012). However, prior studies have mostly concentrated on school-aged children, and it remains unclear whether problems with psychosocial functioning begin already early on or emerge as secondary problems due to difficulties experienced with learning in school.

1.1.2 Emotional well-being and school motivation

Emotional well-being refers to the quality of emotional experiences that make one's life pleasant or unpleasant in the long run, how frequently and at what intensity an individual experiences different emotions in everyday life, and how he/she typically reacts to the surrounding environment (Kahneman & Deaton, 2010). In the school context, emotions are important as they directly influence how a day fares, whether learning feels good, and whether the student is able to invest in learning. Emotional well-being also influences the student's leisure time, all environments where he or she spends time, all of his/her interpersonal relationships, and all of the activities in which he/she participates. Furthermore, emotional well-being is sensitive to developmental periods, especially during adolescence when puberty begins to influence biological, cognitive, and social development. For example, adolescents start to prefer spending time with friends instead of parents and their self-image is just developing, comparing themselves, for example, with friends or pictures in social media, directly impacting emotional well-being. Emotional well-being is conceptualized in this dissertation in terms of school burnout, self-esteem, and internalizing and externalizing behavior, all of which describe high negative and low positive effects (e.g., Watson, Clark, & Tellegen, 1988). These are not so easy to notice at school, as low emotional well-being typically causes no harm inside the classroom; rather, it is caused inside the student (McIntosh et al., 2014).

Desires, needs and actions underlying motivation have a direct influence on both learning and school life. Several theories about achievement motivation or learning motivation have been proposed (e.g., Wigfield & Cambria, 2010), ranging from unitary perceptions to multidimensional perspectives (e.g., Deci & Ryan, 2012), where emotions, social environments, and cognitions are seen as important factors in motivation and promoting overall well-being. In this dissertation, school motivation is viewed from a standpoint where the aforementioned aspects are combined: task-focused behavior, task value (literacy value and math value), and school enjoyment.

In this chapter, elaboration about both emotional well-being and school motivation is discussed. These are different conceptualizations as outlined in Figure 1; however, they also partly overlap. Previous literature has suggested that they are closely related and have a reciprocal association (e.g., Renshaw et al., 2016;

Suldo & Shaffer, 2008). For example, low school motivation may enhance subsequent internalizing or externalizing behavior, which similarly may underlie low motivation toward school (Lei, Cui, & Zhou, 2018; Li & Lerner, 2011; Roeser et al., 1998; Roeser, Strobel, & Quihuis, 2002). Seen the other way around, those with higher school motivation tend to be more optimistic and open-minded as well as behaving well at school, while those with low school motivation and who do not feel emotionally well more typically behave in disruptive ways in the classroom or do not enjoy school (e.g., Li & Lerner, 2011; Roeser et al., 2002). These examples postulate both concepts should be addressed together as they seem to be strongly interrelated.

School burnout is operationalized similarly to work-related burnout but in the context of the individual's personal feelings about schoolwork (for a review, see Walburg, 2014). It comprises three components: exhaustion, cynical attitude toward school, and a sense of inadequacy (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009a). School burnout is mostly studied in Finland (Salmela-Aro, 2017) but is relevant across nations (May, Bauer, & Fincham, 2015; Walburg, 2014; Yang & Chen, 2015). It has been suggested that about 10–15% of students experience severe school burnout (Salmela-Aro, Kiuru, Pietikäinen, & Jokela, 2008; Salmela-Aro, Savolainen & Holopainen, 2009b; Yang & Chen, 2015). It has also been suggested that school burnout predicts depression if no support is provided and burnout is prolonged (Salmela-Aro et al., 2009b). Therefore, those students suffering from severe school burnout may also have depressive symptoms. Today's school environment is highly stressful. Students are expected to be more and more independent in their studies (Väljjarvi, Mannonen, Huttunen, Ojanen, & Koskelo, 2018), and the end phase of the basic education may be highly competitive. Thus, school burnout is important to address during this time point.

Self-esteem as an affective evaluation of self and one's overall sense of worth is also important for emotional well-being (Djambazova-Popordanoska, 2016; Schutte, Malouff, Simunek, McKenley, & Hollander, 2002). It refers to an individual's global sense of well-being (Zelevke, 2004) and reflects how much a person likes, accepts and respects him- or herself overall as a person (Harter, 1990; Rosenberg, 1965). Previous studies have reported that high self-esteem is associated with happiness regardless of stressful experiences (e.g., Baumeister, Campbell, Krueger, & Vohs, 2003), whereas low self-esteem is linked to sadness (Ciarrochi, Heaven, & Davies, 2007). It is typical for individuals to see themselves in a more negative light in early adolescence, but this generally improves positively again in late adolescence (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002; Schaffhuser, Allemand, & Schwarz, 2017). Thus, all adolescents experience some episodes of low self-esteem during adolescence, but this may also change rapidly.

School motivation has been studied previously, for example, by examining students' approach and avoidance motivation in learning situations (Elliot, 1999; Hangen, Elliot, & Jamieson, 2018) and competence beliefs in learning tasks (Baranik, Stanley, Bynum, & Lance, 2010; Wigfield et al., 2015). Studies have analyzed the response style one chooses toward the learning task; that is, whether

behavior is directed by approaching a desirable outcome or by anticipating failure and completely avoiding the task (Dweck, Chiu, & Hong, 1995; Elliot, 1999; Elliot & Covington, 2001). It is influenced by students' previous experiences (Kiuru et al., 2014; Norem & Cantor, 1986; Wigfield et al., 2015), which in a cumulative way influence later performance (e.g., if a child has reading difficulties, he or she will avoid reading activities, and if he/she avoids learning the skills then consequent learning will not occur; Onatsu-Arvilommi & Nurmi, 2002). Also, competence beliefs (i.e., whether or not an individual feels competent about performing a task) are an important influence on whether a student's behavior is task-focused or task-avoidant (Wigfield et al., 2015). In this dissertation, task-focused behavior is treated as a variable of school motivation

Another variable of school motivation is task value, best explained by expectancy-value theory, which presumes that expectancies for future success and values given to a task influence an individual's performance, persistence, and task choice in learning situations (Eccles, 2005; Eccles-Parsons et al., 1983; Wigfield & Cambria, 2010; Wigfield & Eccles, 1992, 2000; Wigfield et al., 2015). Four elements are important to describe task value. First, whether the task is meaningful to oneself in a way that motivates one to do well in the task (attainment value) affects how one meets a task and how well one accomplishes it. Second, whether the task is something he or she values as interesting and enjoys completing it (intrinsic enjoyment value) has an impact on intrinsic positive feelings about performing the task and helps with accomplishing it. Third, whether the task is useful for future plans (utility value) affects how advantageous the student feels a task is and whether or not to accomplish it. Fourth, the amount of effort required to perform the task (relative cost) affects whether the student feels it is worth accomplishing.

In addition to task values, enjoying learning experiences is an important part of motivation (Pekrun, 1992, 2006, 2009). School enjoyment is directly linked to school motivation through value and control cognitions (Hagenauer & Hascher, 2014; Pekrun, 1992, 2006, 2009). Thus, for example, if a student does not enjoy math lessons because of the teacher or noisy classmates, then she or he may start to lose motivation for the math subject. School enjoyment as a positive emotion experienced in learning situations may also help in dealing with difficult learning situations. It also impacts a student's school life more generally, for instance: a student may not enjoy to go to school because she or he is being bullied, yet can nevertheless still have high motivation toward school subjects and learning. Therefore, while enjoyment is an important part of school motivation it can also be independent from task value or task-focused behavior.

As said earlier, both concepts—school motivation and emotional well-being—should be addressed within the same study. However, only a few studies have examined both and the use of the person-oriented approach is rare. The previous literature indicates individual variation in associations but also similarities, since similar profile groups have been discovered in different studies. A type of profile group has been reported where the levels of school motivation and emotional well-being are a mismatch: one is at a low level while the other is high.

Typically, school motivation and emotional well-being associate similarly, both being either high, average or low in level (Korhonen et al., 2014; Roeser et al., 1998; Roeser, Eccles, & Freedman-Doan, 1999; Tuominen-Soini & Salmela-Aro, 2014). Another limitation in previous studies has been the use of grade point averages (GPA) rather than performance in academic skill tests, such as standardized reading and math tests. Furthermore, the role of learning difficulties has not typically been examined at all (Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). An exception to this is a study by Korhonen and colleagues (2014), who included academic skill tests; according their study, basic academic skills and well-being variables are not always concordant. However, the narrow range of the student well-being measures in that study left open questions regarding the more comprehensive associations between school motivation, emotional well-being, and basic academic skills

In Study II, a comprehensive set of measures of school motivation and emotional well-being was used to identify profile groups of adolescents by utilizing a person-oriented approach. Also, profile groups' associations with basic academic skills and the amount of learning difficulties in reading and math was examined in a representative sample of adolescents before the transition to separate educational tracks. The main aim was to identify distinct profile groups where both school motivation and emotional well-being are at the same level (high or low), in addition to mixed profiles, as found in previous profiling studies (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). In addition, differences between the identified profile groups, in terms of basic academic skills, were expected (Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014).

1.1.3 Depression in adolescence and early support

The period of adolescence is full of changes, including biological and cognitive changes as well as changes in social relationships. Similarly, it is a sensitive time in terms of psychopathology as the number of those whose internalizing and externalizing behavior is causing harm to both the adolescent and his or her environment doubles from childhood (Marttunen & Kaltiala-Heino, 2014). According to prior studies, 20–25% of 13–18-year-olds have some kind of mental illness (Marttunen & Karlsson, 2014), and 70% of mental disorders begin prior to age 25 (Kessler et al., 2007). Therefore, what a student experiences during his or her period of adolescence may also determine his/her future life.

Concerning the mental illnesses, depression is one of the most typical during adolescence and its prevalence increases rapidly after 13 years of age (Hankin et al., 1998). As many as one out of five adolescents experiences symptoms of depression (Marttunen & Karlsson, 2014), and the same number experience at least one depressive episode (diagnosable) by the end of age 24 (Gore et al., 2011). Nearly every classroom has several depressed adolescents as moderate or severe depressive symptoms are quite common during adolescence, the prevalence being approximately 17% among females and 8% among males (Savioja et al., 2015). Thus, it seems to be obvious that mental health issues need to be attended when

talking about student well-being and learning-related issues. Previous studies considering child and adolescent mental health have addressed the importance of implementing evidence-based practices in school in order to prevent mental health disorders (e.g., McIntosh et al., 2014; Weist et al., 2018). Similarly, the importance of evidence-based methods at the school level is being addressed in Finland (Anttila et al., 2016).

Even mild depressive symptoms (i.e., subthreshold depression) may lead to negative outcomes, such as impairments in school functioning and in family and social relationships (Birmaher et al., 1996; Flament, Cohen, Choquet, Jeammet, & Ledoux, 2001), elevate risk for subsequent depressive episodes (e.g., Bertha & Balazs, 2013), increase risk for suicide, and self-harm (e.g., Hawton, Saunders, & O'Connor, 2012). For some adolescents, depressive symptoms will continue until adulthood if not treated (Marttunen & Karlsson, 2014; Weissman, 1999). To avoid these negative outcomes, depressive disorders should be tackled at an early stage, when the symptoms and associated functional impairment are still mild (Horowitz & Garber, 2006).

The importance of early intervention is widely acknowledged, as indicated before, and mental health prevention is also broadly accepted and even nationally defined (e.g., Student Welfare Act). Despite this evidence concerning even mild symptoms and the fact of the rapid increase of mental health problems after age 13, it is surprising to find out that mental health disorders, including depression, are largely undertreated among adolescents (Haarasilta, Marttunen, Kaprio, & Aro, 2003; Jörg et al., 2016; Merikangas et al., 2010). According to an epidemiological study, at the time, only 10% of students received treatment for mental health issues (Ghandour, Kogan, Blumberg, Jones, & Perrin, 2012), and 70% of those who would need support for mental health, having a diagnosable disorder, had not received support (Jörg et al., 2016). Multiple reasons may explain that, one being that the majority of adolescents do not seek treatment even if screened positive for mental health problems (Chisolm, Klima, Gardner, & Kelleher, 2009; Scott et al., 2009). Thus, even if mental health is being screened by the school's health and welfare service (during health inspections in 8th grade), it may not be motivating enough for certain students to seek help. Moreover, in schools in Finland and internationally, the focus is mainly on prevention and supporting learning, not using a systematic, structured or evidence-based treatment approach to address mental health problems (Anttila et al., 2016; Arora et al., 2019; Ranta et al., 2017).

In addition to the harm to the affected individual and his or her close relations, episodes of depression cause major costs to society (Beecham, 2014; Fergusson, Boden, & Horwood, 2007; Lucas, Bayer, & Gold, 2013; Peltola et al., 2011; Whiteford et al., 2013), such as by increasing the use of other services like social and health services (Lynch & Clarke, 2006; Peltola et al., 2011). According to Chisolm and colleagues (2016), early depression treatment is cost-effective. In Finland, national care recommendations suggest students with mild but not complex mental health problems should be treated at school or by community-based health and welfare services using brief evidence-based treatments (Depression:

Current Care Guidelines Recommendation, 2016). Thus, more resources should be invested in student welfare services to be able to respond to the increasing need for care during adolescence. First, more data on this issue is needed from Finnish student welfare services; the effectiveness of individual student welfare has not been analyzed in Finland. In fact, the effectiveness of student welfare services concerning the treatment of depression has not been studied in Finland. Secondly, knowledge considering the acceptability of such brief treatments is needed, such as finding out how satisfied students and student welfare workers are. Thirdly, there seems to be a massive gap between the need for care and the reality of students with mental health problems as they are not receiving or seeking any support, which should be examined in more detail. More information on the effectiveness, acceptability and feasibility of brief depression treatments by Finnish student welfare services may yield some answers with respect to that gap.

Study III explored the feasibility, acceptability, and preliminary effectiveness of interpersonal counseling (IPC) compared with brief psychosocial support (BPS), examining routine counseling in the Finnish student welfare services in a randomized controlled trial. The number of treatment sessions was defined (six sessions), the intervention included multiple measures assessing psychosocial functioning, overall well-being and depression, the intervention focused on depression, and all students included in the study were diagnosed as depressed. Thus, actually, the BPS represents an enhanced, more intensive and more focused version of routine counseling. I will go into more depth about these brief treatments and Finnish student welfare services in section 1.3 Possibilities to support well-being at school.

1.1.4 Gender differences in student well-being

In some of the previous studies on well-being at school, gender differences have appeared. Generally, it is often shown that girls report more internalizing emotional problems, such as anxiety, whereas externalizing behavioral problems, such as disruptive behavior, are more common among boys (Achenbach & Edelbrock, 1978; Besser & Blatt, 2007). Girls typically have lower self-esteem than boys (Schaffhuser et al., 2017). However, already from preschool age, girls are more socially skilled (cooperative, responsible, and able to self-regulate) than boys (Abdi, 2010). During adolescence, girls tend to have a higher likelihood of belonging to subgroups that attach high value to school. However, they also exhibit more school burnout (exhaustion) and internalizing problems, whereas boys have been overrepresented in subgroups that show detachment from school and externalizing problems (Korhonen et al., 2014; Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014).

When comparing genders and their basic academic skills, girls are considered superior to boys in both reading fluency and reading comprehension (Badian, 1997; Voyer & Voyer, 2014), whereas boys have been shown to perform better than girls in standardized math tests (Badian, 1999; Dirks, Spyer, van Lieshoul, & de Sonnevile, 2008; Voyer & Voyer, 2014). Further, it has been suggested that girls are superior to boys in overall comparisons of all mandatory

school grades (Voyer & Voyer, 2014). These differences may not be accurate and genders may be equally comparable in basic academic skills. Previous studies have tried to explain differences according to expectancy-value theory (Steinmayr & Spinath, 2008): females might do more poorly than males in math because they have low expectancy and value for their math skills, whereas this may be the reverse for reading-related skills. Also, cultural and social factors may have an impact, such as parents' attributions (e.g., encouraging girls' efforts in schoolwork over boys' efforts in the same; Varner & Mandara, 2013) or stereotypes (e.g., adults' expectations of girls' school achievements; Hartley & Sutton, 2013).

Studies focusing on well-being and learning difficulties have also reported gender differences. Boys with learning difficulties have been found to manifest more problems with self-regulation and social functioning compared to girls with learning difficulties, who experience more depression, withdrawal, and somatic problems (Kempe, Gustafson, & Samuelsson, 2011; Trzesniewski, Moffit, Caspi, Taylor, & Maughan, 2006; Willcutt & Pennington, 2000b). Therefore, illustrating similar differences as gender differences common, as described here.

Therefore, some gender differences have appeared in relation to student well-being and its association with learning difficulties, and it seems important to take into account possible gender differences when exploring the associations between well-being and learning. However, as has been suggested in previous studies, gender differences in basic academic skills may partly be explained by expectancy-value theory as well as cultural and social aspects. Hence, results considering gender differences should always be interpreted with caution. In addition, individual variation also exists among each gender, not just between genders. Thus, gender differences need to be acknowledged, but they are not blindly trustful facts and may illustrate cultural and social, even societal, aspects. Anyhow, statistically significant differences seem to appear between genders, and therefore gender differences in early associations between well-being and learning as well as in well-being profiles during the final year of basic education were explored in this dissertation.

1.2 Basic academic skills and learning difficulties

Reading and mathematical skills are two central basic academic skills that have an impact on the way the brain receives, processes, stores and analyzes information. These skills have neurobiological origins, but also various environmental factors (e.g., adequately good teaching) as well as personal factors (e.g., interest in learning content) may affect them. If a child struggles with a basic academic skill (i.e., reading or math skill), it may negatively affect his or her studying from the beginning of his/her schooling: studying requires more effort, including more time to do homework, and more help from teachers and/or parents is needed. However, sometimes students may have difficulties with both basic academic skills – math and reading skills – which typically makes learning an even greater struggle. From previous studies, it is known that basic academic skills are

important for success in school as well as in later life (Murray et al., 2007); further, basic academic skills are important for well-being at school, as mentioned in a previous OECD report (OECD, 2017).

Many children and adolescents struggle with these central skills (Dirks et al., 2008). Typically, these basic academic skills are measured along a continuum using standardized tests. A cut-off score is used to define whether a child in a certain sample has learning difficulties or not. The cut-off score differs among studies, ranging from the 10th to the 35th percentile (e.g., Gersten, Jordan, & Flojo, 2005; Landerl & Moll, 2010), which can affect the prevalence estimates of learning difficulties (e.g., Gersten et al., 2005; Mazzocco & Myers, 2003). In addition to the more general way of estimating learning difficulties according to cut-off scores in certain standardized tests, the *Diagnostic and Statistical Manual* (DSM-5; Tannock, 2013) defines a medical term: *specific learning disability*. The manual is a cross-culturally used medical criterion for recognizing when difficulties in basic academic skills are defined as a specific learning disability. Specific learning disability is a neurodevelopmental disorder that impedes learning or the use of specific basic academic skills (e.g., reading or math) even when intelligence, teaching and social factors are adequate. Learning difficulties and specific learning disabilities belong to the same continuum reflecting the level or specificity of difficulties. In my studies, the concept of *specific learning disability* refers to children with dyslexia, and a cut-off score below the 10th percentile was used. When a cut-off score at the 25th percentile was employed, the participants are referred to as having *learning difficulties* (in math, reading fluency, or reading comprehension). However, whereas the concepts of learning disability or learning difficulty are sometimes used synonymously (e.g., in studies by Andersson, 2010; Itkonen & Jahnukainen, 2010; Mazzocco & Myers, 2003), the term *learning difficulty* is used throughout this dissertation in reference to both difficulties in a certain learning area and dyslexia as a matter of consistency.

1.2.1 Reading difficulties

Reading difficulties are one of most studied problems in learning (Elbro, 1996; Peterson & Pennington, 2015). The foundation for reading skills develops early on and is closely connected to language development (Bates, 1999), and early oral language competencies predict later literacy skills (Pearson & Hiebert, 2010). Language development begins with differentiating speech sounds, progresses to comprehending and using short words and later short sentences. During the development, reading-related skills also develop, such as letter–sound knowledge and phonological awareness—comprehension that words constitute smaller units (i.e., syllables and phonemes). To be able to read in a typical way, normal development of cognitive abilities (e.g., reading-related linguistic skills and adequate language comprehension) are needed (e.g., Lyon, Shaywitz, & Shaywitz, 2003; Vellutino, Fletcher, Snowling, & Scanlon, 2004). For fluent reading, both single-word decoding and reading comprehension skills are crucial (Fletcher, 2009).

Learning to read Finnish typically occurs reciprocally with phonological awareness, because of the transparent letter–sound correspondence of the language (Aro et al., 1999). At first, a Finnish child learns to distinguish phonemes, vowels from words, and then, step by step, begins to distinguish syllables and bigger units until understanding to combine the units into words. Learning the mapping of phonemes and graphemes is a relatively easy task in the Finnish language and helps in acquiring basic decoding skills (Aro & Wimmer, 2003; Seymour, Aro, & Erskine, 2003). This is in contrast to a deep orthography such as English, where letter–sound correspondence differs and reading accuracy is a more challenging task. Most Finnish children can read in a fluent and accurate way by the end of the second school year (Seymour et al., 2003). However, if a Finnish child has difficulty naming letters or exhibits inaccurate speech–sound perceptions, this predicts reading difficulties. Thus, if a Finnish student struggles with reading, the main characteristic is typically slow reading (e.g., de Jong & van der Leij, 2003; Landerl & Wimmer, 2008; Landerl, Wimmer, & Frith, 1997; Zoccolotti et al., 2005).

Dyslexia is a specific developmental difficulty in which there are problems with a child’s linguistic abilities, such as word identification, phonological awareness, letter–sound knowledge, rapid automatized naming, verbal learning and/or verbal memory (e.g., Vellutino et al., 2004) even if intelligence, teaching and social factors are adequate (Scarborough, 1991; Pennington & Lefly, 2001). A core cognitive deficit in dyslexia is suggested to be a phonological processing deficit (Vellutino et al., 2004). The prevalence of dyslexia varies from 4–9% (Lewis, Hitch, & Walker, 1994) and is largely hereditary (Pennington & Lefly, 2001; Puolakanaho et al., 2007; Scarborough, 1991; Snowling, Gallagher, & Frith, 2003). However, reading status is considered to be unstable during development (Catts, Compton, Tomblin, & Bridges, 2012; Eloranta, Närhi, Eklund, Ahonen, & Aro, 2019; Etmanskie, Partanen, & Siegel, 2016; Torppa, Eklund, van Bergen, & Lyytinen, 2015), based on findings where 27% of those identified as having dyslexia earlier on no longer met diagnostic criteria by age 14 (Torppa et al., 2015) and more than half had improved by adulthood (Eloranta et al., 2019). Nevertheless, in some children, dyslexia may also develop later on, after the early years of schooling (Catts et al., 2012; Etmanskie et al., 2016). This reflects the importance of the development of reading skills and illustrates that, even with difficulties, it is possible to reach typical reading skills or difficulties may develop only later.

In sum, reading skills begin to develop early on during a child’s language development, and reading fluency continues to develop even after the child has learned basic decoding skills. Similarly, the development progresses with an increasing ability to read, understand and write more and more complex texts. However, the development of reading skills does not always happen in a coherent way; rather, development is changing all the time in sync with the brain’s development and dependent upon the teaching and learning experiences as well as the environment where the child lives, which may have an impact on reading development (e.g., traumatic family environment). For example, a child may struggle a bit with reading skills at the beginning of school; reading may be slow

or include errors, but the child may still stick with the same pace as the other children with help from home or from the teacher, or by being persistent on his or her own. However, struggling may become a bigger issue later on in school, when the reading context begins to be more complex and the amount of homework increases. The situation begins to be particularly difficult if the child does not receive any support from his or her surroundings or his/her own persistence begins to fade, for example, during secondary school. This is why school personnel should constantly evaluate students' reading skills, even in the cases of those who had a good level at the beginning of their school career.

1.2.2 Math and comorbid difficulties

Learning mathematics requires multiple skills related to numbers and counting, such as regarding numerals, numbers and numerosity. Babies as young as six months old have the capacity to discriminate frequency distributions from visually presented numerosities (Libertus, Feigenson, & Halberda, 2018). A complex interplay of different cognitive skills—such as executive functions, working memory, magnitude processing, arithmetic fact retrieval, visual-spatial skills, and understanding numerosity—are needed to learn mathematics (Butterworth, 2010; Mazzocco, 2007).

These aforementioned skills are learned in a cumulative manner from simple to more complex arithmetical abilities (Butterworth, Varma, & Laurillard, 2011; Mazzocco & Mayers, 2003; Rodríguez-Jiménez, Cordero, Enciso, & Mora, 2016; Sowinski et al., 2015). Thus, the basics of counting and perceiving numerosities begin to function during infancy and are followed by the development of other cognitive abilities. For example, it is suggested that high counting skills during preschool predict later math skills (Aunola, Leskinen, Lerkkanen, & Nurmi, 2004), and the ability to perceive numerosities is suggested to be most central to later math skills development (Butterworth, 2010). In addition to *primary skills*, learning mathematics also requires skills that are learned from being taught (e.g., square root), in which the child's individual characteristics are also important, such as whether having a spontaneous orientation toward numbers, along with cultural and educational stimulation (e.g., McMullen, Hannula-Sormunen, Laakkonen, & Lehtinen, 2016; McMullen, Hannula-Sormunen, & Lehtinen, 2017).

In mathematical learning difficulty, the core deficit is suggested to be in processing numerosity (Geary, 2013). However, there are a variety of mathematical subskills, and depending on the assessment tool used the results for mathematical difficulties can differ since the measurements capture different mathematical subskills (Moll, Landerl, Snowling, & Schulte-Körne, 2018). The prevalence of mathematical difficulties is suggested to be 3–7% (Butterworth, 2010), but not all children who have problems with mathematics have such difficulties (Mazzocco, 2007). In sum, learning mathematics requires *primary skills*, which begin in infancy and develop while growing up, like the ability to understand numerals, numbers, and numerosity. In addition, *secondary skills* are needed, such as an interest in learning and receiving adequate teaching. Therefore, having the

potential for acquiring these primary skills is not enough if a child has no motivation for learning mathematics; this makes expectancy-value theory very important in defining at which level a child's skills are along the continuum of math skills (Steinmayr & Spinath, 2008). In addition, learning mathematics is cumulative; new skills are learned on top of prior ones. Therefore, math difficulties may also be prevalent later on as learning mathematics becomes even more complex.

Furthermore, sometimes students have difficulties in both math and reading skills, since mathematics and reading difficulties frequently occur together; 22–64% of students have comorbid difficulties, with the cut-off criterion ranging between the 25th and 7th percentiles (Dirks et al., 2008; Koponen, Eklund, & Salmi, 2018; Landerl & Moll, 2010). In addition, if a student has a severe difficulty in one domain (e.g., reading), then this clearly increases the risk of having difficulty in another (e.g., math) (Koponen et al., 2018). The reasons for co-occurrence are not yet fully understood, but they are probably various, such as common underlying cognitive factors affecting learning in both areas (e.g., memory, attention, processing speed; Moll, Göbel, Gooch, Landerl, & Snowling, 2016; Willcutt et al., 2013). Students with comorbid difficulties are suggested to suffer more general achievement deficits, whereas students with difficulties in a single area may experience difficulties only in the area where the learning difficulty occurs and may illustrate academic strengths in other domains (Compton, Fuchs, Fuchs, Lambert, & Hamlett, 2012; Dirks et al., 2008; Willcutt et al., 2013). Therefore, a child who has problems with reading may require more work at school in subjects that include lots of reading-related material, but he or she may find math lessons easier.

Summing up, both reading-related and math skills begin to develop early, and they continue to develop throughout the school years. Environmental aspects, such as adequate teaching or the support a child receives, as well as the child's own interest, are also important in learning. However, if a child is struggling with basic academic skills or has learning difficulties, then learning will require more effort and support from his or her environment, and even more so if comorbid difficulties appear. Furthermore, if no support is given or if the student is not focused on learning or certain prerequisite skills have not been learned, then learning may become even more difficult as new skills are learned on top of prior skills. Thus, strong foundation is important. After all, it is no wonder that a student with low basic academic skills and learning difficulties may also have problems with well-being, such as a negative self-image.

1.2.3 Student well-being and learning difficulties

There has been increasing interest in understanding more about the association between student well-being and learning difficulties as the importance of well-being during learning has been acknowledged nationally as well as internationally. Various previous studies have indicated there to be an association between well-being and basic academic skills (e.g., Greenham, 1999; Livingston, Siegel, & Ribary, 2018; Morgan & Fuchs, 2007; Morgan et al., 2012). Most of the previous studies have suggested a negative association, where learning difficulties have a

negative impact on well-being. Simplified, a child with learning difficulties may struggle with learning at school, which may trigger frustration toward and/or avoidance of learning tasks and even cause sadness at school / reduce his or her motivation at school (e.g., Carroll, Maughan, Goodman, & Meltzer, 2004; Halonen, Aunola, Ahonen, & Nurmi, 2006; Willcutt & Pennington, 2000b). Further, the child with difficulties may start to compare his or her skills with typically learning children, which, again, may have an impact on the child's self-concept as a learner (Maughan & Carroll, 2006; McNulty, 2003; Rack, 1997). It may not be an easy for a child to notice that his or her own learning results remain lower than those of others even when having studied with full effort. The other way around, well-being can also have an impact on learning. For example, if a child is feeling anxious, sad or depressed in general, then he or she will have no energy to do homework or to concentrate on schoolwork, and subsequently, after a while, the child may begin to lag behind in schoolwork (Deighton et al., 2018). These two simplified ways, where learning has an impact on well-being and well-being on learning, are just leading examples considering previous research where both well-being and learning skills have been studied.

However, links between learning and well-being are rarely as simple as presented above, they are rather likely to vary between individuals (Janosz et al., 2008; Korhonen et al., 2014; Li & Lerner, 2011; Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014). The literature indicates that students seem to represent highly heterogeneous profiles in terms of well-being at school. Although difficulties in learning and well-being often co-occur, this is not the complete picture. For instance, it has been reported that some students are motivated about school and get good grades, but, at the same time, they are extremely exhausted and suffer from school burnout (Tuominen-Soini & Salmela-Aro, 2014). Conversely, some students are not motivated toward school and do not achieve well academically, but they do not suffer from poor well-being; they may be simply more interested in other areas in life than school (Roeser et al., 1998). Thus, recognizing that associations between well-being and learning variables may vary individually is essential in order to find the most effective and individually fitted ways to support their school attendance and basic academic skills.

There are also numerous other important aspects impacting student well-being, other than basic academic skills and learning difficulties, or whether there is a link or not. Examining all aspects would have been beyond the scope of the focus of the present dissertation and requires further studies. Traditionally, the focus has been on either different aspects of well-being or on different aspects of learning difficulties. It should be remembered that when considering student well-being, his or her basic academic skills and possible learning difficulties should not be ignored regardless of the low or high level. However, only a few previous studies have adopted an individualized approach, and knowledge may still be limited because of the concentration on only a few variables of well-being (Korhonen et al., 2014), and most of the studies considering children and adolescent well-being do not systemically include basic academic skill tests (e.g., Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014).

So, both well-being and learning are important for success in school. However, the picture is still far from complete; firstly, longitudinal studies beginning prior to school age are scarce, and, secondly, interest in individual variation has increased only in recent research (e.g., Korhonen et al., 2014). Gaining more knowledge about the associations between various aspects of well-being and learning will help educators to respond to the varying needs of their students and to pay attention to important aspects early on. Also, accumulation over time may shed light on underlying layers of associations (Pollak, 2008), which amplifies the importance of taking into account different developmental periods. In my dissertation, student well-being is defined as presented in Figure 1. Accordingly, I will approach describing the association between student well-being and learning difficulties from that viewpoint using the concepts presented in Figure 1.

As presented in Figure 1, learning difficulties and basic academic skills are linked to psychosocial functioning. My intention is to explain the link in more depth. Adaptation and social skills are studied mostly in relation with reading difficulties. In prior studies, regarding young children, a link between low linguistic abilities and social functioning has been reported (Aro, Eklund, Nurmi, & Poikkeus, 2012; Fujiki, Brinton, & Clarke, 2002; Hart, Fujiki, Brinton, & Hart, 2004); one mediating variable between linguistic skills and social functioning is suggested to be the behavioral regulation skill (Aro et al., 2012). Interestingly, in that regard, no differences were detected between poor and typical readers in later school years (Kempe et al., 2011; Morgan, Farkas, Tufis, & Sperling, 2008; Sorensen et al., 2003). Social skills are suggested to develop over time. However, more problems in social skills are suggested among adolescents with reading difficulties (Terras, Thompson, & Minnis, 2009; Undheim, Wichstrøm, & Sund, 2011), which have been explained through interpersonal difficulties (e.g., Undheim et al., 2011). These aspects indicate that development over time impacts the association of well-being to reading difficulties, social skills and adaptation differently.

In comparison, the link between inattention and learning difficulties is suggested to be stronger; multiple studies have indicated comorbid inattention and learning difficulties, especially with reading difficulties (e.g., Carroll et al., 2004; Snowling, Muter, & Carroll, 2007; Willcutt et al., 2007). This association between inattention and reading difficulties has been found at different ages, ranging from early school age (Kempe et al., 2011; Willcutt & Pennington, 2000a, 2000b) to adolescence (Snowling et al., 2007; Undheim & Sund, 2008; Willcutt & Pennington, 2000b). The same underlying genetic factors have been proposed to be the underlying link between inattention and reading difficulties (e.g., dyslexia and inattention; Light, Pennington, Gilger, & DeFries, 1995; Snowling et al., 2007; Trzesniewski et al., 2006; Willcutt & Pennington, 2000a, 2000b).

Externalizing behavior and internalizing behavior are the most studied behavioral areas in education and are consistently documented as being correlated with low basic academic skills in childhood (e.g., Adams, Snowling, Hennessy, & Kind, 1999; Greenham, 1999; Gresham, Lane, MacMillan, & Bocian, 1999; Hinshaw, 1992; Willcutt & Pennington, 2000a) and during adolescence (Arnold et al.,

2005; Deighton et al., 2018; Snowling et al., 2007). It has been suggested that excessive externalizing and internalizing behavior are related to later academic achievement in a negative way (Deighton et al., 2018). Internalizing and externalizing behavior may also stem from difficulties encountered during studying (e.g., Carroll et al., 2004; Willcutt & Pennington, 2000b) or from unfavorable comparisons with typically learning children (Maughan & Carroll, 2006; McNulty, 2003). However, not all studies considering both elementary school students and junior high school students have found such associations of internalizing and externalizing behavior with learning difficulties (e.g., Arnold et al., 2005; Kempe et al., 2011; Snowling et al., 2007). Therefore, some results are contradictory and may be evidencing the complexity between the associations as well as the importance of individual and environmental aspects. In sum, psychosocial functioning seems to be associated with basic academic skills, links to inattention are supported in multiple studies and results considering adaptability and social skills are similar regarding the early school years. Reported links to externalizing and internalizing behavior seem to vary more between studies, illustrating the complexity of the concepts.

Links between basic academic skills and emotional well-being partly overlap with psychosocial functioning, since internalizing and externalizing behavior describes behavior as well as representing emotions. Students are carrying their emotional states with them at all times; it is therefore impossible to remove feelings from learning situations, but the impact may be indirect and vary individually as well as from one situation to another. For example, high self-esteem seems to support academic achievement by fostering a belief in oneself as a learner (Terras et al., 2009). However, self-esteem is suggested to be vulnerable to feelings of being different from others (e.g., if a student is not aware of his or her learning difficulties or does not accept the difficulties, then poor results at school in relation to other children's achievements may impact self-esteem negatively (Glazard, 2010; Ingesson, 2007), whereas school burnout is directly negatively connected to learning-related issues. If a student experiences school burnout, it is likely to decrease his or her performance and achievement at school in the long run (Owens, Stevenson, & Hadwin, 2012; Salmela-Aro et al., 2009b). A student may feel exhausted or cynical in regard to schoolwork, or might view him- or herself to be an inadequate student. School burnout may predict depressive symptoms, and depression has a negative impact on school achievement (Fiorilli, De Stasio, Di Chiacchio, Pepe, & Salmela-Aro, 2017). Of importance appears to be the feeling of imbalance between the demands of school and students' resources. Also, low basic academic skills are suggested to be linked to anxiety experienced when trying to complete tasks requiring that specific skill (e.g., Bear, Minke, & Manning, 2002); for example, difficult math tasks may increase math anxiety (for reviews, see Ashcraft & Ridley, 2005; Suárez-Pellicioni, Núñez-Peña, & Colomé, 2016).

Motivation variables may be directly linked to learning. For instance, task-focused behavior is reported to be associated to reading development. A child with reading difficulties may also manifest low task-focused behavior, and this

has a further negative impact on reading development (e.g., Mägi et al., 2013; Onatsu-Arviolommi & Nurmi, 2000), but this link is not equally direct in all children (Mägi et al., 2013). Low task-focused behavior and low reading skills are not automatically associated to each other, but a child may not invest effort in reading tasks and that makes learning to read more difficult. Low task value may negatively impact learning (e.g., when having poor basic academic skills in the particular area, interest in the specific subject may also be low as a child might not put effort into learning and subsequently learning might not take place; Jõgi, Kikas, Lerkkanen, & Mägi, 2015; Klauda & Guthrie, 2015; Onatsu-Arviolommi & Nurmi, 2000). Similarly, poor basic academic skills may underlie low task value. Additionally, a positive association has been suggested: math value predicts later math achievement, and this link becomes stronger over the course of a student's development (Broussard & Garrison, 2004). Therefore, task value and task-focused behavior seem to be important to achievement, where achievement further increases the positive link. The link between school enjoyment and basic academic skills may be more indirect. It has been suggested that a student's own belief in succeeding in a subject (Goetz, Frensell, Hall, & Pekrun, 2008), his or her interest in a task (intrinsic value), and his/her experience of the usefulness of a task for the future (utility value; Hagenauer & Hascher, 2014) mediate the positive link between academic achievement and school enjoyment.

The results reported above, concerning the association between well-being and learning, imply needing to gain more information about the association between student well-being and basic academic skills. Overall, it seems that basic academic skills are more directly linked to school motivation, attention skills and, at least at the beginning of school, also with social skills, whereas the link to emotional well-being variables and school enjoyment seem to be more indirect. However, most of the studies just mentioned used only students' grade point average (GPA), not standardized tests, for the analysis of basic academic skills. Standardized test results are more reliable for analysis. In addition, prior studies lack longitudinal information about the time prior and after the transition to school; thus, it is impossible to rule out the impact of experiences in school. In addition, the time during junior high school is developmentally important for students and in defining future studies. This developmentally significant period may also illustrate more complex individual links.

Seen together, the view that is taken in this dissertation highlights the link between well-being and learning. The association between well-being and learning difficulties seems to be reciprocal, where: (1) learning difficulties may impact well-being directly or some other issues may mediate the association; (2) poor well-being may impact learning, which, may be difficult to address as the link may not be direct but rather results over time. In addition, accumulation over time may steer development in either a more negative or positive direction (e.g., problems may grow bigger if a student does not receive support for his or her difficulties, or a child's own persistence and motivation to learn may produce positive results at school). (3) There may be an underlying third variable that influences both: well-being and basic academic skills. Such a variable may be, for

example, that of environmental risk factors or genetic predispositions causing poor well-being and/or poor basic academic skills (Trzesniewski et al., 2006). Common underlying variables may also have indirect effects, where some skill-related deficits (e.g., attention problems) mediate the association in a negative way (Carroll et al., 2004; Willcutt & Pennington, 2000b). In addition, (4) individual differences in links between well-being and learning may manifest themselves in other ways, such as in cases when it seem impossible to predict from academic achievement whether a student is feeling well or not. Similarly, a student's feelings alone cannot reveal something definite about academic achievement. Furthermore, there may be various individual characteristics that have their own impact and might be impossible to control for in studies (e.g., family history, the impact of the family environment or parents' perceptions) yet mediate the association between learning and well-being. These types of links broaden the associations between well-being and academic skills, concepts adopted in Figure 1.

1.3 Possibilities to support well-being at school

As described, well-being and learning are associated in multiple and complex ways. These associations seem to vary between individuals; associations may change over time and sometimes it is impossible to see from the outside how certain associations have developed and what links exist. This opens up the possibility of students not feeling well at school and no one knows. For example, Finnish students have been high achievers in learning internationally for a decade, and still are, even though Asian countries have been in first place in recent years (OECD, 2016). However, in those same PISA reports, Finnish students feel a lower sense of belonging to school in comparison to other OECD countries, on average (Välijärvi, 2017). In addition, already as early as in elementary school Finnish students show signs of school burnout and some are already burned out (Salmela-Aro, et al., 2016), and a handful of students in every classroom in junior high school experience symptoms of depression (Marttunen & Karlsson, 2014). Therefore, we should not turn our eyes away from students' ill-being, even if Finnish school corridors are typically filled with high academic achievers. Fortunately, the importance of student well-being alongside good learning results is being acknowledged in this decade (Patalay et al., 2016). Ways to intervene at school have progressed as well since the year 2010 (e.g., Girio-Herrera, Ehrlich, Danzi, & La Greca, 2019; Merry et al., 2011). Nevertheless, there seems to be still a long way to go until that understanding evolves into daily practice at school, although tremendous improvements have already been made over the last 15 years since I graduated from basic education.

In Finland, a structure to address students' well-being at school was implemented after 2010 with two legislative acts. However, the methods used within schools differ, since schools have autonomy in how to enact what the law orders. The first act is a basic education act, in which three-tier support for learning and

school attendance was defined (Basic Education Act 642/2010). The second is a student welfare act, which guarantees support for students' well-being and, actually, the well-being of the whole school community (Student Welfare Act 1287/2013). Support and interventions at school, in general, are mostly concentrated on preventing problems in well-being (Arora et al., 2019).

Typically, prevention can be divided into three tiers (regarding Finland, see Anttila et al., 2016; for an international review, see Arora et al., 2019). Prevention at school may be universal, selected, or indicated (Mrazek & Haggerty, 1994). Universal prevention addresses the whole population; for example, all members of a specific group, such as a whole classroom or age cohort in school. The second tier is selective prevention, which is for members of a subgroup identified as having a risk for psychosocial problems. One example may be a group of students who have no friends, as loneliness may be a risk for later internalizing problems. The third one is indicated or targeted prevention, which is for those who may already have some psychosocial problems or, for instance, mild symptoms of a disorder. Thus, mental health work at school is mainly preventive, even if prevention and treatment are somewhat overlapping terms; it is possible to speak of "prevention" or "treatment" prior facing more severe symptoms, whereas both may be used when supporting students with mild symptoms. In school-based services, the word "treatment" is rarely used (e.g., Arora et al., 2019; Merry et al., 2011; Werner-Seidler, Perry, Callear, Newby, & Christensen, 2017). In my dissertation, I use the word *treatment* when I talk about targeted individual interventions applied at school.

1.3.1 Student welfare services and the need for treatments

The student welfare law was enacted in the year 2014 to improve students' learning, health, well-being and participation, as well as to prevent problems before they form and to improve the well-being of learning environments (Student Welfare Act 1287/2013). Every Finnish school has its own welfare service, where school psychologists, school social workers, and school nurses traditionally base their practices on the prevention of problems in well-being, offering supportive care on an as-needed basis. They offer counseling to adolescents when they face psychosocial problems, or they refer students to treatment in cases of more complex mental health issues (Ministry of Social Affairs and Health, 2009). The amount of individual sessions provided to students varies from 3 to 8 sessions on average (Ranta et al., 2018); students' needs are unpredictable and often sudden. The work of student welfare services varies according to the school and the particular needs of students as well as of the professionals working in these services; thus, sessions tend not to have a systematic structure or method. Every student welfare worker has his or her own individual style when it comes to enacting the laws (Student Welfare Act 1287/2013). Rather, the focus changes according the students' needs, and, typically, time for planning the sessions is not easy to find. Furthermore, work in school welfare services varies by profession (e.g., annual physical examinations are provided by school nurses), and working

with mental health problems is only a part of the duties of each professional group.

Preventive mental health work at schools in Finland is mainly communal welfare (Student Welfare Act 1287/2013) or general support, according to the Basic Education Act (642/2010). It is typically universal prevention applied during everyday education at school, where the focus is on the whole class or applied to a specific group of students who may be particularly at risk for having problems in well-being (Ekstam, Linnanmäki, & Aunio, 2015). One example of a universal prevention is the FRIENDS program (e.g., Barret & Turner, 2001), which is a program based on cognitive-behavioral theory that aims to prevent anxiety and other internalizing problems, and it is also meant to enhance overall well-being and is supported by the World Health Organization (WHO, 2004). According to previous meta-analyses, universal prevention has multiple advantages, such as there being no need to screen specific groups or to single out any student and thereby minimizing possible stigma, and it can spot those students who might not be at risk at the time of prevention but who may develop symptoms in the future (Werner-Seidler et al., 2017). For example, the FRIENDS program provides psychoeducation about stress and worry, helps students to cope with the aforementioned feelings, and normalizes anxious feelings (Shortt, Barrett, & Fox, 2001).

According to a recent national report, the work in student health and welfare services in Finland is mostly work with individuals rather than communal in nature (Hietanen-Peltonen, Vaara, & Laitinen, 2019a, 2019b). This suggests that individual support is valued by these services, but students also still need targeted and individualized support for personal needs. According to the Student Welfare Act, professionals at student welfare services need to provide individual sessions to students in need within 8 working days (Student Welfare Act 1287/2013); typically, the students who apply for individual sessions fulfill the time available by the student welfare service, but not always (Hietanen-Peltonen et al., 2019a, 2019b). Importantly, universal prevention may not be sufficient to help everyone. For instance, when students already have problems in well-being or symptoms of mental illness, targeted individual or group-based interventions are suggested to be superior in comparison to the universal prevention approach used in the school environment (Werner-Seidler et al., 2017).

Evidence-based, structured interventions targeting mental health symptoms or disorders have not been widely used by student welfare services (Anttila et al., 2016) despite growing recognition in Finland of the need for such interventions at an early stage (for reports, see Haravuori, Muinonen, Kanste, & Marttunen, 2017; Ranta et al., 2018) and worldwide (Arora et al., 2019; Girio-Herrera et al., 2019; Werner-Seidler et al., 2017). Typically, treatment has taken place outside school surroundings (e.g., in special health care clinics), which can have long waiting times, and a diagnosis is needed before treatment, which may feel stigmatizing (Haravuori et al., 2017). According to previous studies, more research is needed to establish the effectiveness of treatments for adolescents with mild or moderate clinical depression in naturalistic settings (e.g., Arora et al., 2019; Mufson, 2010; Mufson, Pollack, Wickramaratne, Nomura, Olfson, & Weissman,

2004). Therefore, even if students are asking for help concerning their psychosocial needs and want to talk with student welfare professionals in individual sessions, those sessions rarely follow evidence-based and structured intervention methods for mental health problems.

Offering treatment within schools has multiple advantages. First, practically all adolescents attend public junior high schools in Finland (Official Statistics of Finland, 2017), making school an ideal place for screening and early intervention with respect to psychosocial problems (Leaf et al., 1996; Williams et al., 2009). Secondly, as mentioned above, the work done by Finnish school welfare services already addresses individual well-being (Hietanen-Peltola et al., 2019a, 2019b), which can include consultation for psychosocial problems. Students with symptoms of a mental disorder will need individual consultation even if universal prevention is also provided at the school level (Werner-Seidler et al., 2017). Thirdly, professionals working in student welfare services are typically already familiar with the students and know the school's structure for how students can seek help from the student welfare service (e.g., Girio-Herrera et al., 2019). Fourthly, as service users, adolescents report easy access and minimal disruption to schoolwork as important criteria for their engagement in mental health treatment (Persson et al., 2017). Fifth, offering such brief treatments at school can normalize the idea of having symptoms of mental illness, thereby decreasing the possible stigma, as symptoms are so common during adolescence (e.g., Gore et al., 2011). Symptoms of depression or major depressive disorder, are not a reason to dismiss adolescents from school. Rather, student welfare services offer easy access to treatment and the structures at student welfare services already support the idea of providing brief and structured interventions, where the number of consultation sessions generally corresponds with typical brief interventions available at large. In addition, using a structured format for interventions may save planning time for future sessions.

In summary, based on the Student Welfare Act, the work of student welfare services should be mainly preventive, addressing both individual and communal well-being. A recent national report showed (Hietanen-Peltola et al., 2019a, 2019b) that individual support is more common in comparison to communal support. This suggests that adolescents have a desire for individual support; however, this individual support is not typically brief, structured and targeted for mental health problems (Ranta et al., 2018) and way of working in student welfare services is not common among schools, thus equal support is not guaranteed. In addition, mental health problems increase during adolescence (e.g., Gore et al., 2011), but most of the adolescents with mental health disorders do not get sufficient help early on (e.g., Jörg et al., 2016), yet help is preferably to be provided as early as possible (Horowitz & Garber, 2006). This suggests the need for targeted support in addition to universal support at the school level. However, despite this growing need, treatment is not common among adolescents and generally not provided at school.

1.3.2 Short-term treatment and its implementation at school

Since the beginning of the new millennium, there have been increasing studies considering treatments and reports indicating support is being provided to adolescents in school environments or in the vicinity of adolescents' everyday life (e.g., Horowitz, Garber, Ciesla, Young, & Mufson, 2007). According to previous meta-analyses, effective treatments comparable to non-active treatment for adolescent depression are most commonly *cognitive behavioral therapy* (CBT) and *interpersonal psychotherapy for adolescents* (IPT-A) and their adaptations (Pu et al., 2017; Weisz et al., 2013, 2017; Zhou et al., 2015). These types of treatments have been applied at schools or in communal health and welfare clinics with adolescents who have mental health symptoms (mainly depression and anxiety). Such treatments and their adaptations have shown promise in reducing depressive symptoms in typical student samples, treatments lasting on average up to 10 sessions (Clarke et al., 1995; Horowitz et al., 2007; La Greca, Ehrenreich-May, Mufson, & Chan, 2016; Ruffolo & Fischer, 2009; Young, Mufson, & Davies, 2006a; Young, Mufson, & Gallop, 2010).

IPT-A is adapted from the adult-oriented interpersonal psychotherapy (IPT; Klerman Weissman, Rounsaville, & Chevron, 1984; Markowitz & Weissman, 2012). A key component is the reciprocal link between problems in interpersonal relationships and depressive symptoms. The idea is that depression lessens when adolescents' interpersonal relationships and social interactions improve. Multiple changes occur in the adolescent social environment anyway, and a young person automatically learns new ways to interact with friends and begins to value the time with peers in comparison to spending time with his or her parents. In addition, interpersonal difficulties are likely to drive psychopathology in youths (Rueter, Scaramella, Wallace, & Conger, 1999). Thus, during this developmentally both challenging and important period, IPT-based short-term treatments may be particularly well suited for treating adolescents with depression (Gunlicks-Stoessel, Mufson, Jekal, & Turner, 2010; Horowitz et al., 2007; Thapar, Collishaw, Pine, & Thapar, 2012). In school-based trials, IPT-A has been reported to be more effective in decreasing depressive symptoms than usual treatment methods (treatment as usual, TAU; Mufson et al., 2004b), and also for reducing adolescents' suicidal ideation and hopelessness (Tang, Jou, Ko, Huang, & Yen, 2009), even when they have comorbid anxiety symptoms (Young, Mufson, & Davies, 2006b). IPT-based treatments have been used successfully at schools with adolescents, and the treatments are also more adaptable to better respond to the various needs adolescents may have.

However, up to 10 sessions may be difficult to implement due to the limitations imposed by the school curriculum, such as a limited recruitment period or restricted time to conduct sessions (Girio-Herrera et al., 2019). Furthermore, clinicians who work at the school and provide treatments may have multiple and competing tasks and a high workload (Mufson, 2010). For example, in Finland, a single school social worker and a school psychologist typically work at multiple schools and are responsible for about 1,000 students (Hietanen-Peltonen et al.,

2019a, 2019b). Thus, resources available to provide such treatments needs consideration as well. It is also important to consider whether school personnel who are not specialized in mental health issues are capable of delivering evidence-based treatments (Masia-Warner et al., 2013). In Finland, school psychologists are specialized in mental health issues. Typically, treatment is provided outside the school premises; thus, there may need to be developed a new paradigm or attitude regarding how to work with students, also as there is still much variation between treatment approaches. In addition, according to a recent review, the possibility to provide effective interventions for adolescents in schools requires various aspects, such as flexibility, creativity, problem solving, and collaboration with mental health care providers, parents and school personnel (administrators, counselors, teachers; Girio-Herrera et al., 2019). All of the these factors make it more complicated to offer as many as 10 treatment sessions at school. One possibility is to offer brief and more prevention-oriented treatments at school. Evidence-based treatments have been modified to accommodate fewer sessions (Mufson, Yanes-Lukin, & Anderson, 2015; Weissman et al., 2014; Wood, Harrington, & Moore, 1996). It is assumed that including even only the key therapeutic components in modifications might still lead to more effective results in comparison to TAU (see Mufson et al., 2015).

1.3.3 IPC in school health and welfare center

Interpersonal counseling (IPC) is a brief (i.e., up to eight sessions) treatment derived directly from *interpersonal psychotherapy* (IPT) (Weissman, Markowitz, & Klerman, 2018; Weissman & Klerman, 1993). It has been used effectively in community-oriented health and well-being services with adults for depressive symptoms (IPC; Kontunen, Timonen, Muotka, & Liukkonen, 2016; Menchetti et al., 2010, 2014). A study by Kontunen and colleagues (2016) reported that IPC delivered by nurses in community health care services was just as effective in treating depressed adults as IPT that has been applied in specialized health care. An advantage of IPC is that professionals other than health care personnel can be trained to deliver it (Weissman et al., 2014). However, there is not a lot of information available on the use of IPC with adolescents. One recent pilot study explored the use of IPC with depressed adolescents in a community-based health and welfare clinic (Wilkinson, Cestaro, & Pinchin, 2018). The results suggested that IPC is a feasible intervention, leading to a decrease in depressive symptoms among adolescents treated by youth workers working in the clinic. Results from both the longer version IPT-A in the school context (e.g., Mufson et al., 2004b; Tang et al., 2009) and IPC in a community-based health and welfare clinic (Wilkinson et al., 2018) are promising. A novel and important contribution is to extend the work of IPC to the treatment of clinical depression among adolescents in school settings.

As pointed out above, providing effective treatment at school requires overcoming the challenges faced at school, such as structural aspects and the history of targeting prevention rather than the treatment of mental health symptoms (e.g., Girio-Herrera et al., 2019). When implementing IPC in the Finnish school system,

the intention was not to change existing services regarding student welfare but to provide one more tool to aid in the work with depressed adolescents. Adolescents with depression are inevitably faced in those services. The work of Finnish student welfare services already includes individual support, more so than communal support (Hietanen-Peltonen et al., 2019a, 2019b), with the number of consultation sessions typically going up to five (Ranta et al., 2018). In addition, in average, four to ten sessions is suggested to be an adequate amount in terms of effective treatment for adolescent depression (Googyer et al., 2017). This supports the possibility of IPC fitting in well in Finnish student welfare services. However, structured interventions for mental health are not typically included in student welfare services, which vary widely by profession and the experience professionals have (Haravuori et al., 2017; Ministry of Social Affairs and Health, 2009; Ranta et al., 2018).

In summary, there is a clear need to develop and implement evidence-based treatments for adolescent depression that are easily accessible in schools and through other community-based health and welfare services (Girio-Herrera et al., 2019; Persson et al., 2016). However, implementing targeted treatment of depression in the school context may be challenging, even if treatment is time-limited. Therefore, in Study III, the interest was to explore the effectiveness of IPC in comparison to BPS in treating depression, and to study both the acceptability and feasibility of brief treatments by student welfare services according to both the point of view of students and clinicians.

1.4 Aims of the empirical studies

In this dissertation, the focus is on exploring student well-being from various viewpoints using different methodological approaches. The first longitudinal study set was used to explore the development of the associations between students' well-being and learning difficulties from preschool to the early years of basic education. Second, a person-oriented approach was employed with a large sample of adolescent students, which enabled the analysis of heterogeneous profiles and various well-being variables and their links to basic academic skills. Thus, these studies aimed to explore students' well-being and its association with basic academic skills (i.e., reading and math skills) and learning difficulties (reading and/or math difficulties or dyslexia). Third, an intervention study contrasting two brief treatments in Finnish student welfare services for depression was conducted to examine the depression treatment at school. The measures were all related to student well-being as shown in Figure 1: psychosocial functioning, emotional well-being, school motivation, symptoms of depression, learning difficulties, and basic academic skills (i.e., reading and math).

Study I examined whether children with reading difficulties react to a new, demanding environment (e.g., transition to school) with increased problems in psychosocial functioning in comparison to children with typical reading skills in

the same situation. If difficulties in psychosocial functioning were to increase specifically in children with reading difficulty (i.e., dyslexia), this would suggest that the increase is a reaction to difficulties in meeting school and learning demands. Additionally, the aim was to find out whether psychosocial functioning appears already prior to school age; specifically, whether children with and those without dyslexia differ in psychosocial functioning prior to experiencing difficulties in learning to read at school. This would, again, suggest a possible link between learning difficulties and psychosocial functioning already prior to school age, rather than the latter being a consequence of struggling with reading. The aim was to find out whether or not there are differences between the children with and those without dyslexia in psychosocial functioning variables. This was possible by using a longitudinal data set, where the children with and those without dyslexia were followed over five years from age 4 (approximately three years prior to school enrollment) until age 9 (3rd grade). Changes in psychosocial functioning between the children with and those without dyslexia were compared and relevant differences between the genders were also examined.

In Study II, the attention was shifted from the early school years to adolescence, the period when the young person's development becomes more complex and the environment demands more independent behavior. The first aim was to identify how adolescents are doing during their final year of basic education in terms of school motivation and emotional well-being, and whether it is possible to find some similarities between profiles. The second interest was to explore possible links with adolescents' basic academic skills and prevalence of learning difficulties. Gaining knowledge about all of the aspects at the same time – emotional well-being, school motivation, basic academic skills and the prevalence of learning difficulties – helps in assessing well-being at school, how it is associated with learning, and where support should be targeted at school. A person-oriented approach was used to identify different profiles across well-being measures. The sample of adolescents (over 1,600) was representative of students during their final year of basic education in Finland, just before the transition to the more individualistic secondary education.

Finally, as individual profile groups and reports from Finland reveal, not all adolescents feel well at school and many do not receive the support they need early enough. Thus, the aim of Study III was to examine brief depression treatments provided by student welfare services, and to determine whether a brief treatment could be acceptable, according to the students and treatment providers, and feasible in the school environment. An intervention study enabled assessing the feasibility, acceptability, and preliminary effectiveness of interpersonal counseling in comparison to brief psychosocial support by student welfare services for the treatment of depression.

Taken together, these three studies dig deeper into understanding student well-being, explore the possible underlying link to basic academic skills, and examine whether brief and structured treatments could be provided at school. The overarching purpose was to find out what aspects in regarding to learning need

to be taken into account at school when trying to support students' well-being. The following research questions were posed:

1. What aspects are important for student well-being?
 - a. What is the role of basic academic skills?
 - b. Are there differences between genders in this regard?
2. Is it possible to provide brief treatments at the school level?
 - a. Is the intervention effective and structured in a way that is acceptable to the students and student welfare workers?
 - b. What would it require for brief treatments to be provided at school?

2 METHODS

Studies I and II utilized the sample of a prospective follow-up study, the Jyväskylä Longitudinal Study of Dyslexia (JLD; for a review, see Lyytinen et al., 2008; Lyytinen, Erskine, Hämäläinen, Torppa, & Ronimus, 2015) featuring multiple assessments from birth to Grade 9. The JLD is the longest and most extensive prospective family risk study on reading difficulties (i.e., dyslexia) conducted this far. Prospective family risk studies following children born into families with parental dyslexia offer a useful way to examine at-risk children's development from very early on because dyslexia has a strong hereditary basis (e.g., Cardon et al., 1994; Scarborough, 1991). In addition to reading difficulties, it was possible to examine various aspects of skill development and well-being, because of the multiple assessments of various areas and the comprehensive number of subjects either with or without a history of dyslexia in the family.

Study III of this dissertation was part of the Finnish government project: *Better Well-Being in Adolescence*. The project was implemented together with the large city of Southern Finland, The Hospital District of Helsinki and Uusimaa (HUS), and the National Institute for Health and Welfare (Ranta et al., 2018). The study was a *randomized controlled trial* (RCT) in which *interpersonal counseling* (IPC) for adolescents was compared with *brief psychosocial support* (BPS) in junior high school welfare services in a large city in Southern Finland. The study included versatile measures of depression and overall well-being during the 6–12-week treatment, comprising six intervention sessions as well as two follow-up meetings that took place 3 and 6 months after the intervention.

In Finland, children enter school in the autumn of the year they turn 7 years old, when goal-oriented teaching starts in school. Formal learning at school requires behavioral and cognitive self-regulation of children more so than in preschool. Compared to school, preschool (age 6) is more play-oriented, without formal instruction of decoding or arithmetic skills. Junior high school begins after six years of primary school and lasts three years, covering middle adolescence (ages 13–16). Basic education lasts nine years in total, ending when an adolescent turns 16 years old. That is a critical time point as students choose to continue their studies in either senior high school or vocational school, or they begin to seek a

job. Almost all children accomplish their basic education in Finland (99.7%). However, about 5% of adolescents who complete their basic education do not work or pursue further education (Statistics Finland, 2016).

2.1 Participants

Study I included 170 children who had been followed from birth in the longitudinal JLD study. They had no missing data at ages 4, 6, or 9 years and were thus included in the Study I. Half of the participating children belonged to the family risk group ($n = 88$), where one or both parents had been diagnosed as dyslexic and at least one other close relative reported reading difficulties. In the control group ($n = 82$), parents had no reading or spelling difficulties, and they did not report reading difficulties among close relatives (for more about the participating families, see Leinonen et al., 2001). Prospective family risk studies have demonstrated a greater risk for dyslexia among children with family risk, with an incidence of dyslexia varying from 35 percent (Pennington & Lefly, 2001; Puolakanaaho et al., 2007; van Bergen, de Jong, Maassen, & van der Leij, 2014) up to 66 percent (Snowling, Gallagher, & Frith, 2003) reported for family-risk children at school age, depending on the criteria used and orthography studied. The samples did not show differences in parental education level and represented the Finnish educational distribution quite accurately. All of the children spoke Finnish as their native language and had no mental, physical, or sensory impairments. Children were further allocated to two groups according to their literacy skills at the end of Grade 2: dyslexia ($n = 39$; 20 girls and 19 boys) and no dyslexia ($n = 131$; 65 girls and 66 boys).

The participants in Study II are the same 170 JLD follow-up children as in Study I, including their classmates. The participants of Study II comprised 1,630 Finnish-speaking 9th graders (ages 15–16) in 95 classrooms located in central Finland in urban and suburban areas. The data were collected at a critical developmental transition point, when adolescents complete their nine-year basic education and choose to either continue their studies in senior high school or vocational school, or enter the workforce. The data were collected in classroom situations; all classrooms were typical Finnish junior high school classrooms. Parents had given their written consent for their child's participation in the study.

The participants in Study III were 12–16-year-old students from 28 public junior high schools of a large city in Southern Finland, all together 55 students (43 girls and 12 boys), who began receiving either IPC or BPS from September 2016 to April 2017. Fifty of the adolescents were born in Finland, and all spoke fluent Finnish. The clinicians who were providing interventions were recruited from local junior high school student health and welfare services; they were school psychologists ($n = 16$), school social workers ($n = 15$), or school nurses ($n = 7$) by profession. In addition, one community health and welfare service for adolescents with a target of treating mild or moderate psychosocial problems was included as a study site, including one nurse and one psychologist.

2.2 Measures and procedure

2.2.1 Basic academic skills and learning difficulties

Learning difficulties (Studies I & II)

In Study I, learning difficulties included dyslexia. It was identified with literacy tasks at the end of Grade 2, comprising four measures assessing reading/spelling accuracy and four measures assessing reading fluency (pseudoword reading, word reading, spelling accuracy, text reading, reading pseudoword text, and word list reading fluency). A cut-off point was determined for each task using the distribution of the control group. A score at or below the 10th percentile was classified as a deficit. A child was diagnosed as having dyslexia if he or she showed a deficit in one of three ways: (1) in at least three out of four measures in reading/writing accuracy, (2) in at least three out of four measures in reading fluency, or (3) in at least two accuracy and two fluency measures. For a more detailed description, see the original paper.

In Study II, learning difficulties were identified based on reading comprehension (PISA) and math (KTLT-A) assessments. The commonly used 25th percentile cut-off score was used to distinguish students with learning difficulties in reading and math, respectively, or both (e.g., Mazzocco, 2008; Murphy, Mazzocco, Hanich, & Early, 2007).

Basic academic skills (Study II)

In Study II, reading fluency was assessed with the following three group-administered tasks: sentence reading (Mayringer & Wimmer, 2003), error search (Holopainen, Kairaluoma, Nevala, Ahonen, & Aro, 2004), and word chains task (Holopainen et al., 2004). Each of the three measures represented a sum score calculated by subtracting the number of incorrect answers from the number of correct answers or correctly identified words in the word chains task. The measure for reading fluency was the mean of the standardized scores of the three group-administered tasks. The Cronbach's alpha reliability coefficient for the three reading fluency measures was .78.

Reading comprehension was assessed with the PISA reading items for Grade 9 students' reading achievement. The items have been used repeatedly in each cycle of the PISA reading assessments to ensure the comparability of the measurements (Organisation for Economic Cooperation and Development OECD, 2010, p. 26; 2013, p. 45). The booklet presented to the students included eight texts or other materials (such as tables, graphs and figures), 15 multiple-choice questions, and 16 open-ended questions. After the instructions were given, the students had 60 minutes to complete the task. The sum score for reading comprehension was calculated by summing the item scores derived by using the detailed PISA scoring instructions. The Cronbach's alpha reliability coefficient for the total score was .80.

Mathematical skills were assessed using the standardized KTLT-A test (Räsänen & Leino, 2005). The test contains 40 items, producing a maximum of 40 points. This scale assesses students' performance in basic arithmetic tasks (addition, subtraction, multiplication, and division), as well as in word problem solving, algebra, geometry, and unit conversion skills. This screening test is used in Finland to identify students at risk for mathematics difficulties. The Cronbach's alpha reliability coefficient for the sum score was .90.

2.2.2 Student well-being

Psychosocial functioning (Study I)

In Study I, children's psychosocial functioning was assessed with the Parent Rating Scale (PRS) of the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) when the children were 4, 6, and 9 years old. The BASC incorporates a multidimensional perspective of the child's behavior, including both adaptive and maladaptive aspects. Items are rated on a 4-point scale ranging from "Never" to "Almost always." The following composite scores and their respective scale scores available in PRS scales were used in Study I: 1) Adaptive skills (Adaptability, Social Skills); 2) Attention problems; 3) Externalizing problems (Aggression, Hyperactivity); and 4) Internalizing problems (Anxiety, Depression, Somatization). The composite scores were calculated similarly at all ages using the procedure suggested in the manual. Because the BASC scales have not yet been normed in Finland, standardized scores were used based on the score distribution for children in the control group. The Cronbach's alpha reliabilities for the scales, at ages 4, 6, and 9 years, respectively, were: Adaptability and Social Skills, .55, .75, .72; Inattention, .70, .77, .79; Externalizing, .74, .79, .78; and Internalizing, .69, .68, .69.

Low emotional well-being (Study II)

In Study II, low emotional well-being was assessed with four measures capturing school burnout, low self-esteem, externalizing behavior, and internalizing behavior. School burnout was assessed using the School Burnout Inventory (SBI; Salmela-Aro & Näätänen, 2005; for validity and reliability, see Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008). The SBI consists of 10 items and 3 subscales: exhaustion at school, cynicism regarding school, and sense of inadequacy as a student. The Cronbach's alpha reliability for the total burnout scale was .74.

Low self-esteem was assessed using a five-item, shortened version of the Rosenberg Self-Esteem Scale (Rosenberg, 1965) that captures self-respect, general acceptance of self, and overall conception of the self (e.g., *I believe I have many good qualities*). The Cronbach's alpha reliability for self-esteem items was .80. Students' externalizing and internalizing behavior was assessed with a questionnaire developed for the study. Four items that the students self-rated, reflecting aggressive behavior and conduct problems, were conceptualized as externalizing behavior: *Other children annoy me; I often get mad and lose my temper; I fight or argue a lot; I get irritated easily*. Internalizing behavior was conceptualized through five

items reflecting anxiety and depression: *I am worried about many things; I often feel like crying; I get tired easily; I often have a stomachache or headache; I am often unhappy or down.* Participants used a 5-point scale (1 = totally agree, 5 = totally disagree). The Cronbach's alphas were .83 and .81 for externalizing behavior and internalizing behavior, respectively.

School motivation (Study II)

The four student self-report scales were used to assess school motivation in Study II: math motivation, literacy motivation, task-focused behavior, and school enjoyment. Measures of math motivation and literacy motivation were constructed by calculating mean scores of items assessing different types of task value. Task value was assessed by asking students 12 questions regarding math and literacy (Eccles et al., 1983). Students were asked to rate (1) how interesting, (2) how important, and (3) how useful they thought math and literacy were as school subjects, using a 5-point scale (1 = not at all, 5 = very much). The Cronbach's alpha reliability coefficient was .90 for math (six items) and .88 for literacy (six items).

For assessing students' task-focused behavior and school enjoyment, a shortened version of the original 20-item Achievement Beliefs Scale for Children was used (ABS-C; Aunola & Nurmi, 2006). The present analyses utilized seven item statements, which assessed students' typical task-focused behavior in academic situations when facing a difficult task (e.g., *I like difficult school tasks as well*). Four items examined school enjoyment by assessing typical attitudes and feelings toward school and schoolwork (e.g., *It is nice to come to school*). The Cronbach's alpha reliability coefficients for the scale were .81. for task-focused behavior and .75 for school enjoyment.

Depression, overall well-being, and functioning (Study III)

The screening measure used in Study III was the Finnish modification of the 13-item revised Beck Depression Inventory, R-BDI (Beck & Beck, 1972; Raitasalo, 2007). It is widely used in the Finnish student welfare services for screening depressive symptoms. Cronbach's alpha for the 13 items in this study population was .68.

The diagnostic evaluation used the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version (K-SADS-PL) (Kaufman et al., 1997) to ascertain whether adolescents met the inclusion criteria and that no exclusion criteria were present. The current, updated K-SADS-5 version was used; it is a semi-structured interview covering both lifetime and current mental disorders according to the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5). In addition, adolescents completed the Alcohol Use Disorders Identification Test (AUDIT) (Reinert & Allen, 2002), which is a 10-item questionnaire measuring alcohol use and/or alcohol-related problems.

The primary treatment outcome measures defined in the trial protocol were: (1) self-reported change in depression symptoms as measured by the Beck Depression Inventory (BDI; Beck et al., 1961), a widely used 21-item questionnaire

for depression (Brooks & Kutcher, 2001; Myers & Winters, 2002). The items are rated using a 4-point Likert-type scale ranging from 0 to 3. The range of total scores goes from 0 to 63. (2) A clinician-reported change in depression symptoms as measured by the Adolescent Depression Rating Scale, clinician version (ADRSc; Revah-Levy, Birmaher, Gasquet, & Falissard, 2007), rated by the clinicians delivering the IPC or BPS. In the ADRSc, items are rated from 0 to 6 (with 6 indicating the greatest severity) and the scores are summed (range 0–60). The optimal cut-off for a clinical diagnosis of depression is a total score of 15. Both the BDI and ADRSc ratings were completed at the first, fourth, and sixth treatment sessions. At the 3- and 6-month follow-up, a clinical research psychologist conducted ADRSc ratings and all other follow-up assessments. In this study population, the Cronbach's alpha reliabilities were .89 for the BDI and .80 for the ADRSc.

The secondary outcomes were: (1) change in adolescent self-reported psychological distress/well-being as measured by the Young Person's Clinical Outcomes in Routine Evaluation (YP-CORE; Twigg et al, 2009). Items are rated on a 5-point scale and the scores are summed (range 0–40). The recommended cut-off for clinically significant impairment is 14. (2) Change in global psychosocial functioning as measured by the clinician-rated Children's Global Assessment Scale (CGAS; Shaffer et al., 1983). In the CGAS, the maximum score of 100 indicates superior functioning in key life contexts: at home, at school, with peers; the minimum score of 1 indicates the loss of functioning in these functional domains and indicates the need for constant supervision. Adolescents completed the YP-CORE after each session and at both follow-ups, while the CGAS ratings were made by the student welfare workers at the first, fourth, and sixth treatment sessions. At the 3- and 6-month follow-up visits, a clinical research psychologist conducted the CGAS ratings. The Cronbach's alpha reliabilities were .74 for the YP-CORE and .84 for the CGAS.

Feasibility assessments (Study III)

For both treatments, feasibility was assessed by evaluating adolescents' treatment engagement as evidenced by completing treatment, session attendance, and attendance at follow-ups. In addition, IPC counselors' rate of attendance at supervision sessions was evaluated as an indicator of feasibility. Adolescents' perception of their treatment—in the form of treatment satisfaction, perception of change, and collaboration with the counselor—was assessed also as the indicator of treatment acceptability (Proctor et al., 2011). A subsample of 17 adolescents (approximately 25% of the study sample) were interviewed either face-to-face ($n = 9$) or by telephone ($n = 8$). A structured questionnaire, modified from the Elliot Client Change Interview (Elliot, 2008; 2012), was used. The subsample consisted of all adolescents who, in their participation, reached the 3-month post-treatment measurement time point between March and April 2017. The interviews were conducted at the 3-month follow-up by two university psychology students, who were masked to the treatment condition and trained to conduct the interview.

The questions covered the adolescents' overall satisfaction with the treatment (*How did it feel to be in counseling?*); their perception of change since the treatment began (e.g., *What changes, if any, have you noticed in yourself since counseling started?*); questions about their perception of the different aspects of the therapeutic process (e.g., *What has been helpful about the counseling so far?* or *What kinds of things about the counseling have been hindering, unhelpful, negative or disappointing for you?*); and the research process (e.g., *What has it been like to be involved in this research?*). Questions were added that covered cooperation with the counselor (e.g., *How cooperative were your work with your counselor?*; *Did you feel your feelings and thoughts were understood and accurately perceived by the counselor?*) and the outcome of the treatment program (*Do you still need treatment?*; if new treatment was begun: *How do you feel about the new treatment?*). For the IPC group, one set of questions were added that covered the use of the IPC manual (e.g., *What did you think about the homework?*)

The acceptability of the IPC and BPS for the student welfare workers was evaluated using a structured questionnaire developed for the study. Seven questions assessed clinicians' satisfaction with the treatment, the assessment instruments, and the implementation process in the school. Four questions were presented to the IPC counselors about the IPC training and supervision, and one question was presented to the BPS group about the need for supervision. Ratings were given on a 4-point scale (1 = *I disagree* to 4 = *I agree*).

Assessment of implementation fidelity

To assess the fidelity of the implementation, the IPC counselors' adherence to clinical principles of IPC was evaluated by supervisors' ratings; these ratings were based on the trainees' casework presented in the supervision sessions. A modification of the IPC Competencies List (Wilkinson, 2015) was used (for the original version, see IPT Audio Recording Rating Scale; Law, 2011). The IPC Competencies List contains 34 competencies; however, in this trial, only the 20 competencies related to IPC were assessed (e.g., Knowledge of basic principles and rationale for IPC; Ability to use decision analysis; Ability to balance being focused and maintaining the therapeutic alliance). Supervisors rated the trainee IPC counselors' adherence to clinical principles of IPC on a 5-point scale: 0 = skill/technique was not used / was not relevant at this point, 1 = skill/technique was not mastered at all, 2 = skill/technique was mastered to a small degree, 3 = skill/technique was mastered relatively well, 4 = skill/technique was mastered well. For a more detailed description, see the original paper.

2.2.3 Intervention study – implementation procedure (Study III)

Researchers and managers from the University Hospital and the student welfare services collaborated to conduct the IPC implementation project from 2016–2017. All school welfare professionals at sites randomized to IPC received their training in August 2016 and delivered IPC throughout the school year 2016–2017. School welfare professionals at BPS sites delivered BPS for the duration of the

school year 2016–2017. See Figure 2 for the study’s flowchart of the process from randomization to follow-up sessions, including measures used at sessions.

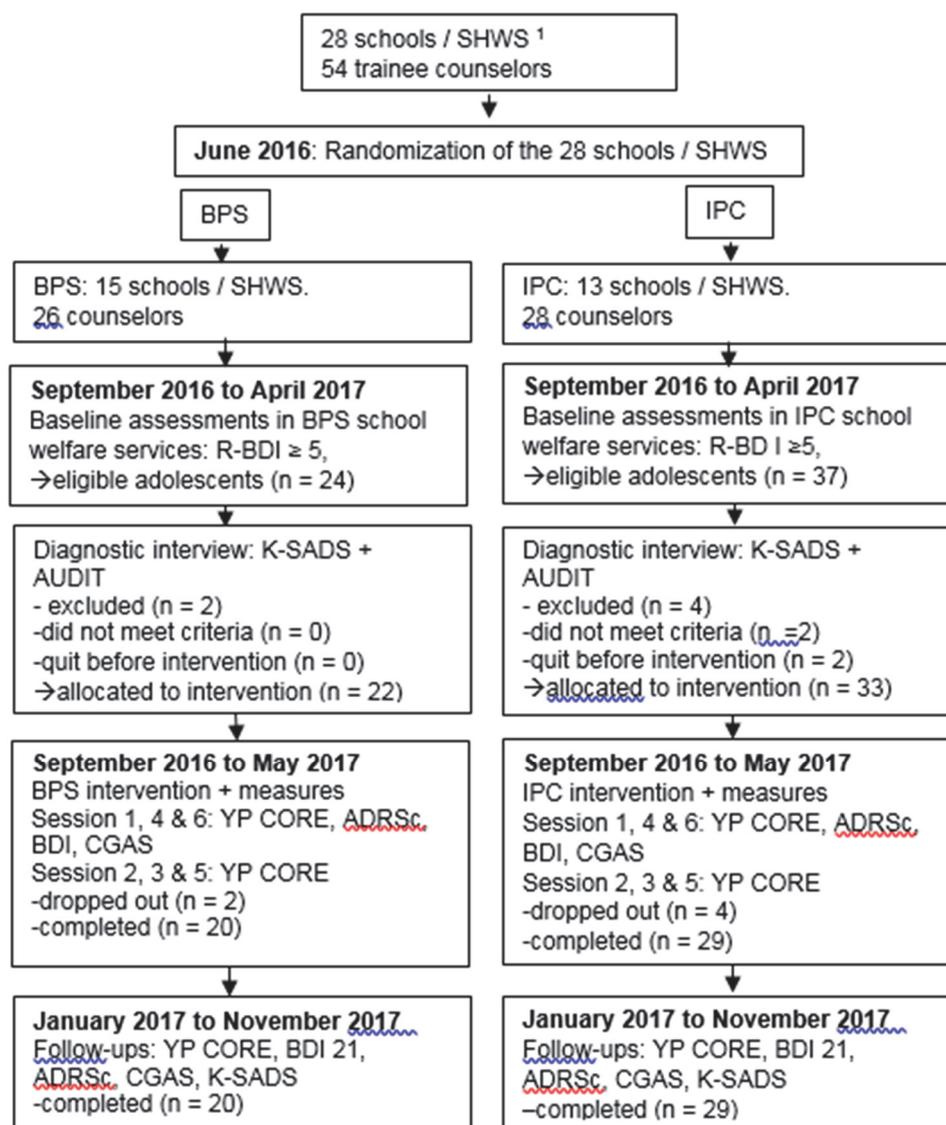


FIGURE 2 Flowchart from Study III.

Note: SHWS = School Health and Welfare Services, BPS = Brief Psychosocial Support, IPC = Interpersonal Counseling, R-BDI = Finnish modification of the 13-item Beck Depression Inventory, K-SADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children, AUDIT = Alcohol Use Disorders Identification Test, YP-CORE = Young Person’s Clinical Outcomes in Routine Evaluation, ADRSc = Adolescent Depression Rating Scale – clinician version, BDI = Beck Depression Inventory, CGAS = Children’s Global Assessment Scale.

¹ One primary level unit providing psychosocial treatments for youth with symptoms on a corresponding level to those in the SHWS was included and randomized as one school/study site.

Randomization

The study was based on a cluster randomization design: the participating schools (sites) were randomized to provide either IPC or BPS. All adolescents participating in the study within the same school received the same intervention. As a result of the randomization, 12 schools and one community health and welfare service were defined as IPC sites. Correspondingly, 15 schools were defined as BPS sites.

Recruitment

As the intention was to study the effectiveness, feasibility, and acceptability of the treatments in a naturalistic setting, the recruitment process followed the normal pathways available for adolescents to obtain help or support from the student welfare services. Students informally identified by student welfare workers in student welfare services as experiencing problems possibly related to depression were first screened for depression with a short depression measure; those who screened positive and consented were referred for a diagnostic interview. No incentives were given for participation. All participating students and their parents or legal guardians provided their written informed consent. See Figure 3 for the student referral process.

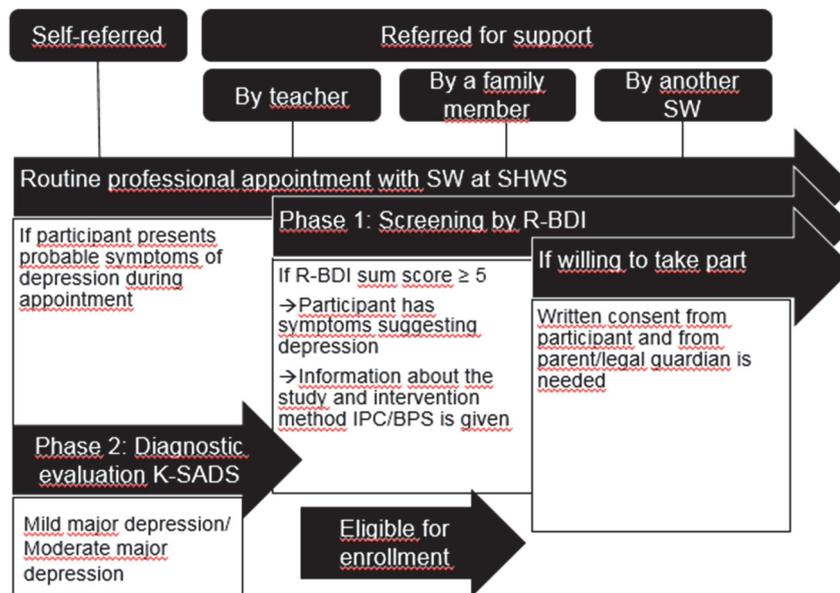


FIGURE 3 Referral process of the Study III.

Note: SW = student welfare worker, SHWS = student health and welfare service, R-BDI = Finnish modification of the Beck Depression Inventory, K-SADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children.

* As illustrated in the upper part of the figure, there are several routes to obtain help for an adolescent who experiences problems in mental health or well-being. In addition, a student may be referred to counseling based on the results of screenings of mood conducted by the school nurse. Such screenings are conducted with specific age cohorts (e.g., 8th graders) each year, but not with all students.

Diagnostic Evaluation

Inclusion in the trial was based on data from a structured psychiatric interview, the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL; Kaufman et al., 1997), and potential comorbidity with alcohol abuse was assessed with a self-report measure, the Alcohol Use Disorders Identification Test (AUDIT; Reinert & Allen, 2002). When needed for diagnostic consideration, consultation with a psychiatrist took place. All adolescents who received a diagnosis of mild or moderate major depressive disorder, dysthymia, or depressive disorder not otherwise specified, according to the DSM-5 definitions (American Psychiatric Association, 2013), were included in the study. In total, four adolescents met the exclusion criteria: one with severe major depression, one acutely referred to child protection services, one with a primary and severe anxiety disorder, and one with a psychotic disorder. In addition, two adolescents declined to participate in the study after the diagnostic evaluation (see Figure 2).

Diagnostic evaluation and all other study assessments were administered again at 3- and 6-month follow-ups by two clinical research psychologists trained to use the interview and other measures used in the study. Diagnostic remission was defined as not fulfilling the criteria for a depressive disorder at both follow-ups. The clinicians performing the diagnostic evaluations were not blinded to the treatment condition.

Treatments and clinicians' training

Interpersonal counseling is a brief, time-limited, and individual-oriented treatment (3–8 sessions) focusing on current symptoms of depression in an interpersonal context. It is a shortened version of IPT and was originally designed to be administered by non-mental health professionals for patients with mild depression (Weissman et al., 2014). The idea is that depression improves when symptoms are related to one or more of four life stressors (grief, role disputes, role transitions, and loneliness/isolation), and strategies are developed for dealing with these stressors (Weissman et al., 2014). In this study, IPC was delivered in six 45-minute sessions over a 6- to 12-week period, following the structure of IPC as delineated by Judd, Weissman, Davis, Hodgins and Piterman (2004). The treatment was administered according to the procedures specified in the IPC treatment manual (Weissman & Verdelli, 2013) and its adaptation for adolescents (Wilkinson & Cestaro, 2015).

The IPC training consisted of three days of didactic and practical training as well as ongoing clinical supervision. Didactic training included a one-day tutorial on the basic principles of IPC and a two-day clinical workshop on the theory and principles behind interpersonal therapy and the clinical use of IPC techniques with adolescents. The IPC treatment manual adapted for adolescents (Wilkinson & Cestaro, 2015) was used in the training. Clinical method-specific supervision was provided in groups of 5 to 6 IPC counselors every second week (lasting 2.5 hours) for the duration of the trial. Each IPC counselor discussed his or her case/s during supervision. Supervisors were

clinicians from the psychiatric special health care services (University Hospital) trained in IPT-A and had at least a year's experience in delivering IPT-A.

Brief psychosocial support (BPS) is based on the methods and techniques used by student welfare workers in their routine work. However, assessing and treating mental health disorders or evaluating psychosocial functioning is not typically part of the duties in student welfare services (Haravuori et al., 2017). Work in student welfare services varies a lot; thus, to ensure comparability across treatments, some structure needed to be established: BPS was delivered with the same frequency, session duration, and including the same session-by-session measures as IPC. In providing BPS, the student welfare workers were instructed to assess, repeatedly monitor and target symptoms of depression through their work. They were also instructed to use their usual professional skills to support the students to cope with symptoms of depression and to limit the intervention to six sessions, preferably one per week; however, because the rhythm in schools varies, the maximum treatment span was 12 weeks. BPS represents an enhanced, more intensive and more focused version of the routine counseling intervention normally provided by professionals working in Finnish student welfare services.

Prior to both IPC or BPS, all participating school welfare workers were given a one-day training workshop on the identification and assessment of depression as well as regarding the use of all of the assessment measures included in the trial, and they were instructed to systematically and repeatedly assess and monitor symptoms of depression in their adolescent clients. Both interventions focused on alleviating depressive symptoms via monitoring of symptom presentation, psychological distress, and overall functioning, including the same measures, which were included in every session (see Figure 2).

TABLE 1 Summary of the Original Studies

Study I	Study II	Study III
Title		
Psychosocial functioning of children with and without dyslexia: A follow-up study from ages four to nine	Profiles of school motivation and emotional well-being among adolescents: Associations with math and reading performance	Interpersonal counseling in the treatment of adolescent depression. A randomized controlled effectiveness and feasibility study in school health and welfare services.
Measurement points		
Children aged 4, 6, and 9 years	Grade 9 (age 15–16)	Pre-evaluation: (Baseline assessments, diagnostic interview); Sessions 1, 2, 3, 4, 5, 6; Follow-up meeting 3 & 6 months after treatment
Comparison groups		
Dyslexia $N = 39$; 52% girls No dyslexia $N = 131$; 51% girls	HM/HW $N = 178$; 52% girls AM/AW $N = 1,107$; 52% girls LM/LW $N = 121$; 67% girls LM $N = 140$; 17% girls LW $N = 83$; 87% girls	IPC = 37; BPS = 24
Approach / Orientation		
Quantitative / Longitudinal study	Quantitative / Person-oriented study	Quantitative & Qualitative / Intervention study
Measures		
Psychosocial functioning: Inattention, Adaptability and social skills, Externalizing behavior, Internalizing behavior, Dyslexia	Emotional well-being: School motivation, Reading fluency, Reading comprehension, Math skills, Learning difficulties (LD)	Baseline characteristics, Depression: symptoms & MDD diagnosis, Overall functioning, Psychological well-being, Treatment feasibility, Treatment acceptability, IPC counselors' adherence
Data analysis methods		
Mixed-method ANOVA One-way ANOVA Repeated measures ANOVA	Latent Profile Analysis One-way ANOVA Multivariate ANOVA Cross-tabulation	Chi-square test t -test Effect size (Cohen's d) Repeated measures ANOVA Conventional content analysis

3 OVERVIEW OF THE ORIGINAL STUDIES

3.1 Study I: Psychosocial functioning of children with and without dyslexia: A follow-up study from ages four to nine

The first study was part of a prospective longitudinal study of children with and without familial risk for dyslexia. It focused on exploring the development of the association between well-being and learning difficulties: whether there are changes in psychosocial functioning (i.e., adaptability and social skills, inattention, internalizing and externalizing behavior) when children encounter learning problems at school. Changes in psychosocial functioning between children with and those without dyslexia were compared during a developmentally important time point, from age 4 to 9, including the transition to school at age 7. The effects of gender and family risk for dyslexia on the associations between dyslexia and psychosocial functioning were also examined.

The study included 170 children, who had been followed from birth in the Jyväskylä Longitudinal Study of Dyslexia (JLD). The children were further allocated to two subgroups, according to their literacy skills at the end of the Grade 2. Children in the *Dyslexia* group ($n = 39$) fulfilled the diagnostic criteria for dyslexia, and children in the *No dyslexia* group ($n = 131$) did not. The children's psychosocial functioning was assessed at ages 4, 6, and 9 using the PRS of the BASC.

The first research question concerned the differences between children with and those without dyslexia in psychosocial functioning at ages 4, 6, and 9. Prior to the analyses, the effect of family risk status was examined using mixed-method analyses of variance (ANOVA). Family risk is a central characteristic of this sample, as the prevalence of family risk for dyslexia in this sample was 76.9% in the *Dyslexia* group and 44.3% in the *No dyslexia* group; thus, its role in psychosocial functioning was examined from age 6 to 9. No significant main or interaction effects were related to family risk status, and, therefore, family risk was not in-

cluded in subsequent analyses. One-way ANOVAs were used to compare children with to those without dyslexia concerning psychosocial functioning at ages 4, 6, and 9. Children with dyslexia had statistically significantly more problems than did the children without dyslexia in social skills prior to school entry (at ages 4 and 6), and they also scored higher in inattention at all three time points. No differences were found in externalizing or internalizing behavior between the groups.

Next, it was examined whether changes in psychosocial functioning differed or were similar across the transition to school (ages 6 to 9) between the children with and without dyslexia, and the effect of gender was considered. Standardized psychosocial functioning measures were used to enable comparisons across different ages. In the mixed-method ANOVA models, the *between-level* factors were dyslexia status (0 = no dyslexia, 1 = dyslexia) and gender (3 = boy, 4 = girl), and the *within-level* factor was time (1 = prior to school entry, 2 = at school age); these were conducted separately for the four psychosocial factors. The results indicated a significant time and dyslexia status interaction for adaptability and social skills. A paired sample *t*-test indicated that a change in adaptability and social skills (toward fewer problems) between ages 6 and 9 was significant only among children with dyslexia; thus, they improved more in adaptability and social skills than did the children with typical reading skills between ages 6 and 9. Also, the gender and dyslexia status interaction was significant. The follow-up analyses using one-way ANOVAs with Bonferroni correction post-hoc comparisons of four groups (typically reading boys $n = 66$, and girls $n = 65$; boys with dyslexia $n = 19$, and girls $n = 20$) indicated that the typically reading girls' adaptability and social skills were higher than those of typically reading boys at ages 6 and 9. The difference between typically reading girls and girls with dyslexia at age 6 was close to significant; those with typical reading skills had higher skills. Surprisingly, in contrast, the difference between typically reading boys and boys with dyslexia at age 9 approached significance, revealing boys with dyslexia had higher skills in comparison to typically reading boys.

The mixed-method ANOVA for inattention indicated a statistically significant main effect for both dyslexia status and time. The main effect of dyslexia status revealed that those with dyslexia were more inattentive in comparison to typically reading children, and the main effect of time indicated an increase of inattention during the time of the transition to school (from preschool age to early school age). The significant time and gender interaction revealed different changes over time among girls and boys. Further analyses with paired *t*-tests indicated that inattention increased among girls, whereas it remained at a high level among boys throughout the duration of preschool and into school. Finally, the mixed-method ANOVA for internalizing behavior indicated a statistically significant main effect for time, suggesting an increase of internalizing behavior after entering school for all children. No significant differences in externalizing behavior emerged.

The findings indicate that children with dyslexia were rated by their parents as having weaker adaptability and social skills and being more inattentive in

comparison to typical readers before entering school. Especially for boys with dyslexia, social skills improved after school entry and approached the level of typically reading girls. Boys with dyslexia showed a high level of inattention both prior to and after school entry, whereas inattention among girls with dyslexia increased after school entry, eventually matching the boys' levels. However, inattention also increased in typically reading girls.

In conclusion, education in the early school years in Finland seems to work well enough that children with difficulties in literacy skills do not seem to show secondary psychosocial problems as a result of those difficulties in reading. Inattention as well as low adaptability and social skills emerged already prior to school age among children later diagnosed with dyslexia, indicating these to be possible early risk signals for dyslexia, rather than due to difficulties in learning to read.

3.2 Study II: Profiles of school motivation and emotional well-being among adolescents: Associations with math and reading performance

The data in the second study included junior high school students from central Finland ($N = 1,629$), age 15–16 (Grade 9). The focus was now pointed to a later developmental period, since experiences, accumulation of difficulties, or time itself may reveal well-being and its link with learning in a different light. The final year in basic education is important, as it is the last year before moving on to separate educational tracks. A person-oriented approach (latent profile analysis LPA) was used to examine students' well-being and whether possible heterogeneous profile groups of school motivation (math motivation, literacy motivation, task-focused behavior, and school enjoyment) and emotional well-being (self-esteem, school burnout, internalizing and externalizing behavior) would be indicated. Gender differences in profiles and their links to basic academic skills of reading fluency, reading comprehension, and math skills and learning difficulties in math, reading, or both were under examination.

The first aim was to examine well-being during adolescence with the possibility of finding subgroups of adolescents that are similar in terms of emotional well-being and school motivation. LPA with multiple variables was analyzed with Mplus. Based on the Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test (VLMR) and the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR), there were five distinct profile groups with respect to the measures of school motivation and emotional well-being. Three of the profile groups had concordant levels of measures: the first group had high motivation and well-being ($n = 178$; 52% girls, HM/HW); the second group was average in both ($n = 1,107$; 52% girls, AM/AW); and the third group had both low motivation and well-being ($n = 121$; 67% girls, LM/LW). Two groups had mixed profiles; one group manifested low

motivation and average well-being ($n = 140$; 17% girls, LM), and the other manifested low well-being and average motivation ($n = 83$; 87% girl, LW). Gender differences in the profile groups were also examined; the observed proportion of boys was statistically higher than expected in the LM group, and the observed proportion of girls was higher than expected in the LM/LW and LW groups.

The second aim was to examine if the profile groups differed in basic academic skills. The profile groups were compared in math skills, reading fluency, and reading comprehension using one-way ANOVAs. Statistically significant differences were indicated in all academic skill measures. Two profile groups with low school motivation (LM and LM/LW) had lower scores in math and reading comprehension. Additionally, students in the LM group had lower scores in reading fluency in comparison to the other groups. The group with high motivation and well-being (HM/HW) scored highest on the math skill and reading comprehension tasks, whereas the group with low well-being (LW) scored highest on the reading fluency task.

A further aim was to find out whether profile groups differed with respect to the proportion of adolescents with learning difficulty in math, reading, or both (comorbid); cross-tabulation was used to explore this. Students with difficulties in math belonged more likely than expected to the LM/LW group (28%), whereas students with difficulties in reading (14%) and comorbid difficulties (18%) in both belonged more likely than expected to the LM group. Students with no difficulties in math or reading were more likely than expected to belong in the HM/HW group (85%).

In conclusion, adolescents show heterogeneous profiles of well-being, where a substantial number of adolescents have either low motivation, low emotional well-being, or both at the end of basic education, but most adolescents are doing okay. The novel finding was that reading fluency, reading comprehension, math skills, and comorbid difficulties had different links to school motivation and emotional well-being profiles. Overall, the relationship of school motivation to basic academic skills and learning difficulties was direct, whereas the link between emotional well-being and learning varied more. On the one hand, the findings suggest that low basic academic skills or learning difficulties do not always indicate problems in well-being or motivation. On the other hand, high levels of school motivation and basic academic skills do not guarantee emotional well-being.

3.3 Study III: Interpersonal counseling in the treatment of adolescent depression. A randomized controlled effectiveness and feasibility study in school health and welfare services

The third study was part of a Finnish government project: *Better Well-Being for Adolescence* where IPC for depression was piloted in student welfare services in a large city in Southern Finland. The focus was now moved from the association

between well-being and learning to improving the way of responding to the reality of adolescents with low well-being at school. Adolescents with low well-being most often suffer from depressive symptoms and milder forms of depression. Therefore, this randomized controlled trial (RCT) was used to examine the preliminary effectiveness, acceptability and feasibility of IPC in comparison to BPS in regard to depression at the student welfare services in one city. All adolescents who were seeking help for depressive symptoms, and adolescents with mild (including also those with subthreshold depression) to moderate depression were included in the study ($n = 55$). Adolescents received six weekly sessions (one per week) of IPC ($n = 33$) or BPS ($n = 22$) and two follow-up meetings up to 6 months after treatment termination.

First, the effectiveness of the treatment was examined, starting with comparisons of the baseline characteristics (age, gender, class, living in a single parent home, socioeconomic status), baseline values of depressive symptoms, overall well-being, and global functioning (BDI, ADRSc, YP-CORE, CGAS). Then, the categorical presence of a depressive disorder, anxiety disorder, and/or other disorders were compared between the adolescents in the IPC and BPS. Chi-square tests were used for categorical data and *t*-tests for continuous data. At the baseline, no significant differences were identified between the groups in regard to depressive symptoms (BDI), overall well-being (YP-CORE), or global functioning (CGAS). The sum score of the clinically administered depression measure (ADRSc) was higher in the IPC group than BPS group. Comorbid anxiety disorders were significantly more common among adolescents randomized to IPC (39.4%) compared with those randomized to BPS (13.6%). Repeated measures of variance with baseline anxiety disorder as a covariate (ANCOVA) was used to examine anxiety disorder's effect on group differences and changes over time for all outcome measures. The results suggest that anxiety disorder did not have an effect on changes over time or on differences between the groups. In addition, the proportion of adolescents with moderate MDD (major depressive disorder) was higher among those randomized to IPC (30.3%) compared to those randomized to BPS (13.6%).

The overall efficacy of both interventions was examined by comparing the baseline scores of all measures (BDI, ADRSc, YP-CORE, and CGAS) with their respective scores once treatment terminated and at the follow-up measurement points 3 and 6 months thereafter, using effect sizes of Cohen's *d*. The overall results show that, in both groups, the mean scores for the depression measures (i.e., BDI, ADRSc) and the measure of psychological distress (i.e., YP-CORE) decreased, and those of global functioning (i.e., CGAS) increased between the baseline and treatment termination. After treatment was ended, the effect sizes of the changes in both groups indicated that these were positive. Changes between the treatment termination and 3-month follow-up were small in all measures for both groups, with gains, again, achieved between the 3-month and 6-month follow-up points.

The effectiveness of IPC relative to BPS was examined by using a group \times time repeated measures ANOVA for the four assessment waves of measures (i.e.,

BDI, ADRSc, YP-CORE, and CGAS). The only statistically significant effect was the main effect of time for all outcome measures, suggesting that adolescents in both groups improved in all outcome measures over time. Finally, clinical response was defined as having at least a 50% reduction of symptoms in depression measures (BDI and ADRSc), and recovery as the absence of depressive symptoms or the presence of only minimal depressive symptoms (score < 10, BDI; score < 15, ADRSc). Data were analyzed using chi-square tests, counting relative risk and odds ratios. By the end of the intervention, around half of the adolescents in both groups had achieved response criteria in both measures. At the end of the intervention, half of the adolescents in both groups achieved the recovery criterion of the BDI, whereas 72% of adolescents in IPC and 86% in BPS achieved the recovery criterion in the ADRSc. No significant group differences in treatment response or recovery were observed at the end of the intervention. At the 3-month follow-up, 60% of adolescents in both groups reached diagnostic remission for a major depressive disorder. Similarly, at the 6-month follow-up, almost 80% of adolescents in both groups reached diagnostic remission. No significant group differences emerged.

The feasibility of the treatments for the adolescents was examined by calculating the completion rate and attendance rate of the scheduled sessions for both interventions. In addition, treatment satisfaction and perception of change were assessed using a structured questionnaire modified from the Elliot Client Change Interview (Elliot, 2008, 2012) for a subsample of adolescents ($n = 17$). The feasibility of IPC and BPS for the counselors was evaluated using a structured questionnaire developed for the study. The feasibility of IPC for the IPC counselors was evaluated by examining the IPC counselors' rate of attendance at supervision sessions and their adherence to IPC principles and practices, as detailed in the modified IPC Competencies List. The feasibility analyses indicated that almost all adolescents (89%) completed the whole treatment and attended all of the scheduled sessions of the treatment agenda and both follow-up meetings. Only 6 of the 55 adolescents dropped-out during the intervention (2 from BPS and 4 from IPC).

Conventional content analysis was used to categorize data from the modified Elliot Client Change Interview. All adolescents who participated in the interview ($n = 17$) described feeling well 3 months after the IPC or BPS treatment ended, except for one adolescent in the IPC group. Adolescents in both treatment groups gave relatively high ratings for the interventions, and all but one adolescent from the IPC group rated their collaboration with the counselor good. Adolescents in both groups reported finding several factors helpful in the treatments. Across both groups, adolescents perceived favorable factors, which included gaining a new perspective or beginning a new thinking process ($n = 5$) and talking with somebody who understands ($n = 8$). Only three adolescents from both groups reported problem areas in the treatment, which were related to scheduling, the content of the intervention, and feeling anxious about treatment situations.

All counselors attended all supervision sessions, except for seven sessions that were conducted by phone. The counselors' satisfaction with the intervention process was quite similar in the IPC and BPS groups. Counselors for the BPS group rated a few points more positively than did the counselors of the IPC group: usefulness of measures and intention to use measures in the future, and fluent flow of the working process. In contrast, counselors of the IPC group rated the intervention process and intention to use the method in the future more positively in comparison to counselors of the BPS group.

IPC counselors' adherence to clinical principles of IPC, according to all rated items (basic IPC competencies, specific techniques, overarching IPC-specific competencies), was rated from *not used* to *mastered relatively well* after the first supervision session, but, after the sixth IPC session, the counselors' competencies were assessed from *mastered to a small degree* to *mastered well* regarding all areas. However, three IPC-specific techniques (communication analysis, decision analysis, and role-playing) were used infrequently during the treatments and were therefore rated as *not used* for most of the sessions. However, the overall results indicate clinicians' ability to deliver IPC to have been good.

This trial suggests that both IPC and BPS were found to be effective, acceptable and feasible interventions for treating adolescents' mild to moderate depression in the school setting. Our findings show promise for improving the early treatment of adolescent depression at school. Short and structured interventions, such as IPC and BPS, seem to be effective in treating mild to moderate depression in school settings, and the positive results can be maintained and even increased at least up to 6 months as tested after the intervention.

4 DISCUSSION

The main aims of this dissertation were to (1) increase the existing knowledge about student well-being and its possible association with basic academic skills and learning difficulties, and to (2) examine whether brief treatment is feasible and acceptable at school, provided through student welfare services, and its effectiveness to treat students with depression. The main interest throughout the dissertational process has been in developmental and individual aspects of student well-being, the importance of awareness of students' levels of basic academic skills, and ways to support well-being at school. The overarching aim was to explore student well-being from various angles using different methodological approaches, to find out important relevant aspects from the school point of view, and to examine whether student welfare services could include structured support in the form of brief treatment interventions for mental health problems.

First, the role of basic academic skills in student well-being was under examination with a focus on psychosocial functioning. Also, gender differences in the link with student well-being was studied. A child with low basic academic skills may struggle at school in a certain learning area from the beginning. If learning needs extra effort from the start and a child notices that she or he stays behind others in learning, then this may be frustrating and a secondary reaction like internalizing behavior might occur. However, considering only school-age children makes it unclear whether the struggling with learning leads to internalizing behavior or whether the child had problems already prior to school age. I wanted to expand the perspective of previous studies and explore the development of psychosocial functioning and its link to reading difficulties throughout young students' first experiences of school, and did so by using a longitudinal study set examining students from age 4 to 9. A fourth of the children had dyslexia in 2nd grade, whereas the comparison group had typical reading skills. The results demonstrate that the transition to school and the demands of school a child encounters seem not to increase problems in psychosocial functioning, even if the child has difficulties with reading and more effort is needed for achieving learning tasks. Thus, the role of basic academic skills in student well-being seems

to develop early on and appears to be linked more strongly with particular psychosocial functioning variables. However, gender-specific differences did appear after the transition into school.

After gaining new information about the development of psychosocial functioning and its association with basic academic skills (i.e., reading) prior to and during the early school years, the next step was to explore important aspects of student well-being at the end of basic education, in Grade 9. Various school motivation and emotional well-being variables were studied using person-oriented approach. By the time students' development has progressed to middle adolescence, experiences from both school and leisure time have accumulated, and pressures experienced during the final year of basic education are in action, particularly just before the transition to senior high school. The aim here was to scrutinize the links between well-being profiles, basic academic skills and learning difficulties. Five distinct profiles representing emotional well-being and school motivation at different levels were detected. In the first group, adolescents had a high level of school motivation and high emotional well-being. In the second group, adolescents showed both average school motivation and average well-being. Adolescents in the third group had low school motivation and low emotional well-being. Thus, for these three profiles respectively, all measures under examination were correspondingly high, average, or low. Two further profile groups had mixed school motivation and emotional well-being, where one was low and the other average in level. Gender was not divided evenly in three of the profile groups. Further, a novel approach in this study was to include various variables and also compare the manifested profiles concerning basic academic skills. Which seems to differ between profiles – those with low school motivation had more likely also low basic academic skills and a high prevalence of learning difficulties, whereas the link to emotional well-being was more indirect. Overall, the findings suggest that most of the adolescents felt emotionally well, were motivated about school, and yet some had difficulties with basic academic skills while others did not. However, one-fifth of all students did have either low school motivation, low emotional well-being, or both, as well as low basic academic skills and a high prevalence of learning difficulties. This one-fifth includes the students who requires special attention at school.

The second aim for this dissertation was to find out whether it could be possible to treat adolescents' depression in the vicinity of their everyday life through student welfare services, how feasible this would be as a school service, and whether students and student welfare workers would find it acceptable. All students – regardless of possible mental health problems – attend school, and all have permission to seek help from student welfare services. Thus, providing brief treatments through the schools' student welfare services could be one answer when a student's symptoms are still mild and his or her level of general functioning is good; that is, when specialized health care services are not yet needed. A brief evidence-based treatment, IPC, was implemented in a real-world school setting for 12–16-year-olds who could self-refer or be referred to seek help from

school-based services. Interpersonal counseling (IPC) and the comparison treatment, called brief psychosocial support (BPS), were provided by student welfare workers. Half of the student welfare services were randomized to provide IPC and received applied training in IPC. The other half were randomized to provide BPS and were instructed to use their routine clinical methods enhanced by the systematic and repeated use of measures assessing depressive symptoms, general functioning, and psychological distress. In this research, the effectiveness, feasibility and acceptability of the IPC intervention in comparison to BPS in treating adolescents' mild to moderate depression at school were examined. The results suggest that brief and structured treatments (IPC or BPS) can be effective in decreasing depressive symptoms, feasible to implement in Finnish student welfare services provided by the existing workforce, and acceptable methods according to students and welfare workers. However, important aspects concerning the features that support and impair the possibility to provide brief treatments at student welfare services were identified as well, such as the fact that student welfare workers are generally not trained to provide specific depression treatments. Novel in this study was gaining information about the effectiveness of IPC in the school setting as well as regarding the feasibility and acceptability of applying brief treatments in Finnish schools.

4.1 Student well-being

Student well-being is presented in Figure 1. Psychosocial functioning (inattention, adaptability and social skills, internalizing and externalizing behavior) illustrates student well-being during childhood and the early school years. It is a time when emotion regulation is just developing from external, behavioral strategy (such as directing action toward coloring) used during a stressful event toward a capacity to use internal, cognitive strategy (such as thinking of happy moments) (e.g. Brenner & Salovey, 1997). During this developmental time, visible and external behavior is more prevalent, therefore student well-being is best captured through observed psychosocial functioning. Thus, participants' psychosocial functioning was rated according to their behavior; that is, parents' ratings were used as they are suggested to report a more realistic view (Dahle et al., 2011) and capture inner feelings (Morgan et al., 2012) better in comparison to teachers. Psychosocial functioning was measured using the Behavior Assessment System for Children (i.e., BASC), which incorporates a multidimensional perspective of the child's behavior, including both adaptive and maladaptive aspects.

It is obvious that a student's well-being evolves as well as the young person's self. The capacity to regulate emotions develops and students start to rely upon internal cognitive strategy; however, the differences between the genders in this regard are suggested to become more pronounced as well (e.g., Brenner & Salovey, 1997), where girls are using emotion-focused management during stressful situations compared to boys' way of using physical exercise to cope with

stressful situations. These examples of emotion regulation strategies used by adolescent boys and girls explain the need for both internal and external student well-being variables. Emotional well-being (school burnout, self-esteem, internalizing and externalizing behavior) reflects the internal state of student well-being, which can also be shown externally (e.g., aggression), whereas school motivation (task-focused behavior, school enjoyment, math motivation, literacy motivation) is a more externally observable state of student well-being. Altogether, these two sides of student well-being, belonging to different but connected continua, seem to capture student well-being accurately and are supported by results from previous similar studies (e.g., Korhonen et al., 2014; Roeser et al., 1998).

In Figure 1, basic academic skills and learning difficulties are also presented as these are linked reciprocally with student well-being. Like the start of the Introduction section of this dissertation shows, learning and well-being are interrelated and both are acknowledged to be important by recent learning-related reports (OECD, 2017). According to Studies I and II, it seems self-evident to include these as one part of student well-being; however, they each fulfill their own individual part in their interrelation with other parts. This implies variation between students: the link with student well-being may be stronger or weaker, varying with time. Either way, the possibility of these links should be noticed by school personnel. As Study II shows, students with low basic academic skills can be found in all profile groups of student well-being; however, in certain groups more likely than in others.

In my dissertation, student well-being is conceptualized through the context of school. The results of Study I suggest that education itself or the demands of school in the early school years do not seem to increase problems in well-being. In addition, it seems that later, during the developmentally important period when all the pressures of the last year of basic education are on, most students still feel emotionally well, are quite motivated toward learning, and even enjoy going to school. In Study II, two types of profiles described these students. The first was the group of average school motivation and emotional well-being, which comprised 68% of the adolescents and had an equal number of boys and girls. Their skill level was average, but some of these students had difficulties with learning as well. The second was a smaller group, whose students showed a high level of school motivation and emotional well-being, comprising 11% of the adolescents and the distribution by gender was even. These adolescents seemed to feel emotionally well and had high motivation toward school. They also had high levels of basic academic skills and the prevalence of learning difficulties was low. Both of these profile groups are similar to those found in previous studies concerned with junior and senior high school students (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). Therefore, these groups are evidencing the fact that not all students with low basic academic skills or learning difficulties have problems with emotional well-being or school motivation, or either of these.

Some students seem to survive the “jungle of basic education” very well. One influential factor may be resilience, a term that can be used to describe, for

example, a situation where a child is able to function well despite difficulties being faced (Masten, Hubbard, Gest, & Tellgen, 1999). Positive environmental factors, such as a child's close relationship with his or her parents, have been suggested to function as a protective variable (Masten et al., 1999). Compared to the result of previous national reports, good communicative connections between young students and their parents have been increasing since the year 2006, according to survey of Finnish 9th graders (Ikonen & Helakorpi, 2019). This suggests that desirable development is taking place and positively impacting student well-being. Furthermore, Finnish student welfare services have been recognized to be already close to perfection in supporting students' mental health according to worldwide comparisons (Coburn, 2019). Therefore, there are aspects we should be proud of in Finland with respect to student well-being, but not too proud to close our eyes in face of the reality happening in school corridors, such as worry over the actualization of three-tier support in education (OAJ, 2017) or increasing mental health problems at school (Hämäläinen, 2019). Thus, the role of learning difficulties and possibilities for brief treatments of depression to improve student well-being still need to be addressed more specifically.

4.2 Student well-being – the role of learning difficulties

Starting from early associations between student well-being and learning difficulties, children with later reading difficulties (i.e., diagnosed dyslexia) showed lower adaptability and social skills and higher levels of inattention in comparison to children with typical reading skills already at ages 4 and 6. A positive increase in adaptability and social skills occurred between ages 6 and 9, whereas inattention stayed at a high level among children with dyslexia between ages 6 and 9. The difficulties specifically seen in children with low literacy skills prior to school age suggest that the demands at school have not increased their problems in psychosocial functioning, rather opening up the possibility of a common third variable. In prior studies among small children, a link between low linguistic abilities and social functioning has been indicated (Aro et al., 2012; Fujiki et al., 2002; Hart et al., 2004). Whereas a strong association between inattention and dyslexia has appeared at school age (Carroll et al., 2004; Kempe et al., 2011; Morgan et al., 2008; Snowling et al., 2007; Willcutt & Pennington, 2000b) and prior to school age (Jordan & Dyer, 2017). Further, no differences in adaptability and social skills between children with and those without dyslexia were evident after the transition to school (age 9), measured in Grade 3 (age 9). This is in line with previous studies (Kempe et al., 2011; Morgan et al., 2008; Snowling et al., 2007; Sorensen et al., 2003). This supports the idea of developmental differences related to both linguistic skills and psychosocial functioning (e.g., behavior regulation; Aro et al., 2012) in comparison to children with typical reading skills. Also, the link to some variables seems to be stronger (inattention and reading skills; Carroll et al., 2004), and a strong link may not change as easily during development.

Furthermore, gender differences in relation to the role of learning difficulties varied. An increase in adaptation and social skills was seen specifically in boys with dyslexia, whose level almost corresponded with that of typically reading girls at age 9, while an increase in inattention level was noted only among girls with dyslexia (from age 6 to 9). Their level of inattention corresponded to the level of typically reading boys at age 6, but almost reached the level of boys with dyslexia by age 9, whereas boys with dyslexia had a high level of inattention both prior to and after school entry. However, these gender-specific differences may imply important issues other than those specifically linked to dyslexia; for example, the level of inattention increased also among typically reading girls. I will go into more depth about these gender differences later, in next section, 4.4. Student well-being and gender differences. These results support the notion that inattention or low adaptation and social skills are not a secondary reaction to struggling with reading at school but rather coincide with low literacy skills. Adaptation and social skills seem to develop over time, but inattention seems to be more stable across time. This suggests that, depending on the common third variable having a reciprocal association between linguistic abilities and psychosocial functioning variables, a child's development over time seems to have some impact regardless of whether that link continues to be strong or not.

The results involving older students (age 15–16) indicated five distinct well-being profiles, which were in accordance with previous studies that examined adolescent profiles based on similar measures of school motivation and emotional well-being (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). The role of basic academic skills and learning difficulties seemed to differ within profiles (i.e., groups). More precisely, low skills and a high prevalence of learning difficulties seemed to be more directly linked to school motivation, whereas the link to emotional well-being was more indirect. The students in profile groups that showed low school motivation also had lower basic academic skills, and the proportion of those with learning difficulties was higher than expected in comparison to profile groups where students showed average or high school motivation. Low academic skills have also previously been shown to correlate with cynicism toward school (Salmela-Aro, 2009), low school value (Wigfield & Cambria, 2010), and low school attachment (Roeser, 1998, 1999). Poor basic academic skills may be one reason for low school motivation, while low school motivation can also have an impact on skills development (Klauda & Guthrie, 2015). This reciprocal mechanism between student well-being and learning difficulties may appear in different ways compared to students' early school years. However, not all students in the group with low school motivation had low basic academic skills.

Nonetheless, even if low school motivation seemed to be more strongly linked to low basic academic skills and the prevalence of learning difficulties, low school motivation did not always imply a broader pattern of poor well-being (see also Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). A profile group with low school motivation yet average emotional well-being (except for heightened school burnout) was apparent. These students reported low interest

in math and literacy, low focus on school tasks, and low school enjoyment. In addition, they had low basic academic skills, especially difficulties with reading fluency. It is possible that these students take a keen interest in activities outside school rather than schoolwork (Roeser et al., 1998), or they may have a cynical attitude toward school but not certain other areas (Tuominen-Soini & Salmela-Aro, 2014). These students may be easy to spot at school when they are not getting good grades and if low school motivation appears in low task-focused behavior. However, more important than giving attention to basic academic skills or school motivation is exploring the role of low basic academic skills, such as whether these students had low skills already at the beginning of school, as that may be the main reason their low school motivation, or whether they have interests other than school (i.e., hobby) and a lack of time for schoolwork could be impacting their basic academic skills as well (Jõgi et al., 2015), or whether there are some other aspects impacting their school motivation and basic academic skills, such as a stressful situation with their family. Therefore, the support or understanding from school personnel should take into account the role of low basic academic skills.

Controversially, a profile group of adolescents was noticed who were motivated toward school and had high skills but were not feeling emotionally well. This group consisted of 5% of the students. A similar group has also been detected previously (Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014). It was surprising to find a high level of basic academic skills, especially high reading fluency, in these students. Therefore, even if resilience is suggested to be linked to high basic academic skills (Masten et al., 1999), a high level of school motivation and high basic academic skills may not always protect against problems in emotional well-being. Previous, similar profiling studies have suggested that high academic goals and a strong commitment to school may make adolescents vulnerable to school burnout (i.e., exhaustion) and low well-being (Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014). Thus, these students with low emotional well-being may also require attention at school, since even if their problems are not as visible at school it does not mean that these have no impact on their school attendance (McIntosh et al., 2014).

Sometimes all difficulties seem to accumulate, as one profile group represented low school motivation and poor emotional well-being as well as a link to low basic academic skills and a high prevalence of learning difficulties. Quite similarly, comprehensively negative profile groups have also been indicated in prior profiling studies (Korhonen et al., 2014; Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014). This group included 7% of the students and is a potentially worrying group of student well-being, also since this negative accumulation of variables may lead to restricted educational and economic attainment (Roeser et al., 1998), as well as to other negative consequences, such as dropping out of school (e.g., Esch et al., 2011; Janosz et al., 2008; Korhonen et al., 2014). These students are potentially in danger of dropping out of their educational career (Gretchel & Myllyniemi, 2017). A novel finding was that while these students had a higher incidence of math and reading comprehension problems, their reading

fluency was at an average level. This suggests difficulties with comprehension rather than the typical profile of reading difficulties characterized by deficient reading fluency. The math and reading comprehension tests used in Study II demanded the ability to focus on the task more than did the fluency task. Low task-focused behavior among students in this group supports this notion as well. This seems to illustrate that low well-being can also interfere in learning (e.g., Deighton et al., 2018). A student might not have the resources needed to be able to concentrate on what is being taught during school lessons, and, subsequently, learning new skills might not happen, especially at the end of the basic education when math and reading tasks are already quite complex, requiring more time and effort from students than before. Thus, it is no wonder if learning difficulties manifest only later as the learning content becomes more difficult (e.g., Torppa et al., 2015). Of course, it is possible that low basic academic skills decrease both emotional well-being and school motivation or that they co-occur reciprocally.

However, these results emphasize the importance of being aware of the role of low basic academic skills in student well-being. In addition, adolescents with comorbid math and reading difficulties were overrepresented in the two groups with low school motivation. This may imply a more severe underlying deficit in comparison to students with a single learning difficulty, as suggested in previous studies (Moll, Silke, Göbel, & Snowling, 2015; Vukovic, 2012). Students with co-occurring difficulties are suggested to have a more negative attitude toward school in comparison to those without such comorbidity (Martínez & Semrud-Clikeman, 2004). Thus, they may need different kinds of support and attention at school than students with a single deficit in basic academic skills. Furthermore, to be able to consider the role of basic academic skills; the associations with various factors should be taken into account as well, that is, as to which one appeared first or whether they coincided in first place.

The association between well-being and learning implies that a common third variable may underlie both (e.g., behavioral regulation skill, genetic factors), and are reciprocally associated early on. However, only adaptability and social skills as well as inattention were linked to low literacy skills at preschool age. It seems that the first years at school function well, since struggling with learning does not seem to increase problems in student well-being at that time. Furthermore, the situation seems to differ during the final year of the basic education, since profiles show heterogeneity in their association to learning. Sometimes the association between student well-being and basic academic skills may appear only later on, despite the first years at school being successful and without emotional issues. Interesting was the novel finding that low school motivation was linked to math and reading difficulties, whereas low emotional well-being only showed an association when accompanied by low school motivation. Attention is needed from the first sign of any problem (well-being or learning) a student might show, and, at such times, the student's situation should be considered from multiple points of view.

However, worth noticing is that most of the adolescents with low basic academic skills or learning difficulties had no problems with school motivation or

emotional well-being. Similarly, not all of those with low school motivation had low basic academic skills. Overall, these results suggest that each student's situation should be considered individually, taking a comprehensive view as well as thoroughly examining the role and association of learning difficulties. If relying blindly on learning results, then knowledge about student well-being may remain scarce: students with low academic skills may feel psychosocially well, have motivation toward school, and have no problems with emotional well-being. The other way around, those who have problems in psychosocial functioning, low school motivation or poor emotional well-being may not have any difficulties in basic academic skills. Thus, basic academic skills do not always play a major role in students' problems or they may have a stronger role than is being noticed.

4.3 Student well-being and gender differences

Gender differences were also explored (in Studies I & II) and were apparent in the research of this dissertation. Already prior to the transition from preschool to school, girls seemed to be better compared to boys in adaptability and social skills as well as attention skills, on average. These findings are similar to those suggested in earlier studies (Abdi, 2010; Besser & Blatt, 2007). In addition, the transition into school had a different impact on inattention between the genders: girls' level of inattention increased whereas boys' level stayed more stable during that time. Gender differences were apparent again during the final year of basic education, when adolescent girls were overrepresented in subgroups that showed high motivation toward literacy and enjoyed school more than did the boys, on average. However, girls had lower self-esteem and were assessed as having more internalizing and externalizing behavior in comparison to boys, on average. Girls also exhibited school burnout, whereas boys were overrepresented in subgroups that show detachment from school and low task-focused behavior. Similar kinds of results regarding gender differences in student well-being have appeared in some previous studies (Korhonen et al., 2014; Roeser et al., 1998; Schaffhuser et al., 2017; Tuominen-Soini & Salmela-Aro, 2014). Even if, in my analyses, girls reported more externalizing behavior on average than boys, the externalizing behavior measures may have captured more inner feelings than external behavior seen from the outside, which is typically more common among boys (Achenbach & Edelbrock, 1978; Besser & Blatt, 2007).

Some gender differences may also reflect different parental normative goals or cultural norms. For example, in Study I, inattention increased in girls irrespective of their reading level when the times prior to and after their school entry were compared. It has been suggested that girls value school success more highly than do boys; therefore, the demands of school and social comparison processes may contribute to an increase in inattention among girls (Harter, 1998). It has also been suggested that girls are more sensitive to environmental changes, such as the transition into school (e.g., Schaffhuser et al., 2017), and they experience more

pressure to perform well at school academically (Herrmann, Koeppen, & Kessels, 2019). Thus, these pressures that girls encounter during the transition to school may increase their level of inattention, at least during the initial school years. However, inattention was higher among girls with dyslexia than among girls with typical reading skills, which supports the earlier notion regarding to strong links of inattention and reading difficulties (e.g., Willcutt & Pennington, 2000 a, b). However, in regard to inattention, girls' levels did not increase beyond the levels of boys with similar reading skills. Thus, the increase may partly be a reaction to the demands of starting school rather than a secondary reaction to struggling with reading, since the girls' levels increased in overall. This emphasizes overall gender differences regarding the relation between inattention and demands of school. The impact of culturally or parentally reflected normative goals and pressure to meet the demands of school should be explored further.

When attention was shifted from the early school years to the final year of basic education, two profile groups with mixed emotional well-being and school motivation appeared. Another profile group with low school motivation included a different number of boys and girls, that is, consisting mostly of boys, and supporting the results from previous studies (Korhonen et al., 2014; Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014). However, the low reading fluency in this group adds additional reasons to be concerned about boys' reading skills. In the latest PISA report, gender differences in reading tasks were greatest between Finnish students, favoring girls, compared to gender differences in other countries (OECD, 2017). Thus, motivation and attitude toward school in relation to reading skills should be explored further as well as possible expected cultural and societal norms (Pöysä & Kupiainen, 2018).

A further mixed profile group with low emotional well-being consisted predominantly of girls. As suggested earlier, girls are more prone to have low emotional well-being (Besser & Blant, 2010; Schaffhuser et al., 2017; Tuominen-Soini & Salmela-Aro, 2014) and a higher likelihood of belonging to subgroups that attach high value to school (Roeser et al., 1998). Exhaustion is the aspect of school burnout that is suggested to be experienced particularly by high-achieving girls (Salmela-Aro, 2017). Therefore, school motivation and high basic academic skills may also predispose students to burnout at school. Long-lasting burnout (exhaustion, in particular), in turn, may, among other things, predispose individuals to depression (Fiorilli et al., 2017). In line with these findings, in Study III, all students who took part in the depression intervention, either IPC or BPS, had high academic scores (average score 8), illustrating possibly their high basic academic skills and/or high level of school motivation. This group illustrates the importance of also screening for aspects other than just learning results at school, and questioning the value of high academic achievement in our society as it seems to also have a potentially high cost in terms of well-being. Accordingly, it is possible that a student with high basic academic skills and lack of learning difficulties may need attention as well at school.

Taken together, gender differences seem to play a significant role in student well-being and should be acknowledged when planning support systems, but

without blindly relying on these as, for example, inattention seems to be linked more to learning difficulties than to gender-specific behavior. Moreover, even though gender differences were evident and supported the results of previous studies, they were not true for all students, and, therefore, are directional rather than obvious true. More attention should be directed toward cultural norms defining the accepted and favored behavior for the genders. Furthermore, there were both boys and girls in all profile groups, suggesting the need for individual attention. In this vein, girls seem to take on the pressures of being achievers and well-mannered students, and, in the case of high achievers, their emotional problems may go unnoticed at school. Boys' expectations of their achievement level may be different, or other expectations for them. School personnel may not have time to stop and ask, "How are you?"; or, if school seems to be going well without any big distractions—they often may not see an obvious reason to worry or to ask this question (McIntosh et al., 2014).

4.4 Support for student well-being at school

These examples concerning student well-being suggest that, at school, personnel should be mindful of students' well-being as well as their academic achievement. It is a step toward appraising the importance of student well-being, which has been acknowledged in a previous OECD report, in the Finnish Basic Education Act, and in multiple news items seen in the media lately. Worryingly, there is no common view in Finland as to what to do about young persons who have low emotional well-being at school, or, in particular, when they have symptoms of depression. The Student Welfare Act (1287/2013) highlights the importance of preventive and communal work at school. The everyday life at school may require more, since individual sessions seem to fill school psychologists' and school social workers' days (Hietanen-Peltola et al., 2019a, b). The structure of student welfare services is not designed for treating symptoms of mental disorders (Arora et al., 2019; Mufson, 2010), and student welfare workers are used to working alone and independently (Haravuori et al., 2017). In other words, the individual sessions are not specifically defined to follow a certain structure. A student welfare worker modifies a way to work depending on students' needs and offers support when a student seeks help. Students' needs may be sudden, which is why planning sessions ahead can be difficult. The variation between professional groups and between schools is profound.

Recently, a group of leading professionals in Finland from student welfare services (Misukka, Gråsten-Salonen, Mäenpää, Ahtola, 2019) expressed a deep concern about work in those services, as resources to work in preventive way at school including treatment are inadequate and treatment should as well be provided by a third party. This third party should operate between school and special health care. A group of leading professionals for adolescent special health care has demanded new ways to treat adolescents specifically at school, alongside preventive work (Raevuori & Ranta, 2019). Therefore, both have same target,

student well-being, but different approach. The Finnish national recommendation for adolescent depression and its treatment (Depression: Current Care Guidelines Recommendation, 2016) stipulates that mild to moderate mental health disorders should be treated by communal welfare services, which are essentially student welfare services. Such communal welfare services for adolescents outside of school are missing or not enough resources are being allocated toward such services. However, this juxtaposition leaves the question: Who asks what an adolescent wants and what would be best for him or her?

Regardless of the different views on what to do when an adolescent suffers from depressive symptoms and what exactly should be done at school, one way to support well-being is to implement brief and structured treatments in school. Two possible approaches were examined in this dissertation: a brief *interpersonal counseling* (IPC) intervention and *brief psychosocial support* (BPS) for students with depression. It was explored whether existing services at school benefit from tools that can be used with adolescents who are dealing with depressive symptoms. The feasibility, acceptability and preliminary effectiveness of the IPC intervention for students with depression in comparison to the BPS intervention was examined. The control treatment, BPS, was supposed to be routine counseling at student welfare services, but it ended up being more structured. First, the counselors providing the BPS were instructed to use their existing professional skills to help students cope with symptoms of depression. Second, all students had been diagnosed as having a major depression disorder. Third, the BPS included six weekly sessions over 12 weeks. Fourth, the BPS provided weekly monitoring of depressive symptoms, psychological distress and overall functioning, whereas, in some previous studies, the control treatment resembled normal school counseling, including only pre- and post-treatment assessments (e.g., Young et al., 2010, 2006a). Therefore, the BPS here represents an enhanced, more intensive and more focused version of the routine counseling normally provided by Finnish student welfare services.

The results suggest that a short and structured intervention at school is a method that can work well: over 40% of adolescents were free from depressive symptoms after six weeks of treatment and over 70% six months after the treatment completion. The treatments were also found acceptable by students and both the IPC and BPS counselors, and were considered feasible in the existing service provided by existing workforce. IPC and BPS both prevented more severe depression and the treatments reduced the symptoms students were already suffering from. Thus, a brief treatment in student welfare services, either IPC or BPS, is effective in reducing symptoms of mild to moderate depression as well as improving adolescents' general functioning and overall well-being. This finding also reiterates previous findings regarding the use of longer interpersonal therapy (lasting 12 weeks) and its adaptations used in school-based services (La Greca et al., 2016; Mufson et al., 2004b; Tang et al., 2009; Young et al., 2006, 2010, 2012).

Further, our finding that the treatment gains were maintained over the six-month post-treatment follow-up period is remarkable and consistent with the

findings of the meta-analysis by Weisz and colleagues (2013), which showed that the benefits of longer evidence-based youth psychotherapies for a range of disorders were maintained 6 months post-treatment in a number of trials. In addition, the symptom reductions at the 6-month follow-up were not just maintained but were actually even greater relative to the reductions observed at the end of the treatment. Most of the IPT-A studies have not presented follow-up analyses up to 6 months post-treatment (Mufson et al., 2004b, 2015; Tang et al., 2009; Young et al., 2006b). Given the shorter duration of IPC relative to IPT-A, these results further support the findings that even time-limited treatments can be effective as early interventions for adolescent depression (Mufson et al., 2015; Wilkinson et al., 2018). Importantly, the findings suggest that students' well-being may be supported within adolescents' daily environment using brief and structured interventions, and treatment gains may even increase 6 months after the treatment completion.

There were no statistically significant differences between IPC and the comparison treatment, BPS, with respect to measures of depressive symptoms, psychosocial functioning, or psychological distress at the termination of treatment or at the 3- or 6-month follow-ups. This finding is consistent with the previous studies where the comparison treatment was similarly active, where no differences in the levels of depressive symptoms between the intervention and comparison groups were indicated, conducted in community settings (see CBT and treatment as usual, Kerfoot et al., 2004) or by specialized health care services (see CBT, short-term psychoanalytical therapy and brief psychosocial intervention, Goodyer et al., 2017). According to the meta-analyses by Weisz, McCarty and Valeri (2006) as well as Weisz and colleagues (2017), psychotherapy studies comparing evidence-based treatments with active comparison treatments report fewer differences between treatments than in studies with passive control conditions. Thus, using an active control condition may be one reason for the finding of there having been no difference in effectiveness between the IPC and BPS.

Adolescents' improvements seen in both groups may have been gained because of the feedback (for counselors and adolescents) given during the intervention (see Bickman et al., 2011; Boswell et al., 2013; Hawkins, Lambert, Vermeersch, Slade, & Tuttle, 2004). There is evidence that the feedback that adolescents themselves receive is important for their well-being (Hawkins et al., 2004). Possibly, the process of conducting symptom assessments and repeated monitoring of change have been even more beneficial to student welfare workers without a particularly defined treatment model (i.e., those providing BPS) than for those who used a structured treatment model such as IPC. These findings suggest that supportive intervention that includes targeted, frequent sessions and repeated assessments of depressive symptoms may be sufficient for reducing depression in youth.

Even if there were no significant differences in the overall effectiveness between the IPC and BPS groups, some differences were apparent. First, there was a trend for adolescents randomized to IPC to report more symptoms at the baseline in comparison to adolescents randomized to BPS. Specifically, the proportion

of IPC participants with comorbid anxiety disorders was significantly higher and the proportion of adolescents with moderate depression was three times higher in the IPC group compared to the BPS group. Also, the depression symptom scores at the baseline suggested more severe depression in the IPC group than in the BPS group. However, these differences at the baseline were not evident at the time of the completion of the treatment. In similar studies, those with more severe depression (Mufson et al., 2004b; Tang et al., 2009) or with a comorbid anxiety disorder (Young et al., 2006b) gained more from IPT-A in comparison to a control treatment group. Thus, our findings suggest that IPC may be effective even if moderate depression or comorbid anxiety exists.

In terms of treatment feasibility, both IPC and BPS were found to be feasible for adolescents, the majority of whom were willing to attend all treatment and follow-up sessions. The attendance rate of all scheduled treatment and follow-up sessions was 89%, which is comparable to previous IPT-A-based studies conducted in school settings (Mufson et al., 2004b; Young et al., 2010). In addition, in both groups, the student welfare workers reported that the intervention delivery was smooth; however, this was even more evident in the BPS group. This difference here may reflect the fact that the IPC was a completely new and unfamiliar method to the student welfare professionals and consequently was likely to require extra effort.

The acceptability of IPC and BPS was regarded as good by adolescents and also by student welfare workers. Adolescents and counselors both felt that the treatment did help the adolescents; all but one adolescent were satisfied with the treatment. Five individuals felt that they still needed further treatment. Therefore, six sessions may not be sufficient for everyone. The IPC counselors valued the IPC method and credited its success to the supervision they received. The supervision seemed to have a positive impact on the entire IPC process. Supervision during a psychotherapy process has been suggested to foster counselors' self-efficacy in delivering therapy (e.g., Cashwell & Dooley, 2001), as well as enhancing counselors' ability to attain key psychotherapeutic skills (Ögren & Jonsson, 2004), suggesting that a structured and supervised intervention method may increase counselors' courage and self-confidence. Further, the BPS counselors highly valued the addition of repeated measures to their routine way of working methods reflecting the importance of structure and feedback that repeated use of measures provide.

Despite the importance of supervision, it is likely that clinicians' competencies in providing IPC would have increased after a greater number of supervised, completed cases (Owen, Wampold, Kopta, Rousmaniere, & Miller, 2016). It was indicated that the IPC counselors did not typically use IPC-specific techniques (i.e. communication analysis, role-playing, and decision analysis), suggesting that more time is needed to practice the IPC method in order to use IPC techniques effectively. This raises the possibility that IPC was not fully implemented. Similarly, in a previous study, the novelty of specific components of a treatment is suggested to influence the ability to implement a CBT-based program (Masia Warner, Brice, Esseling, Steward, Mufson, & Herzig, 2013). Thus, the results of

this study represent the effect of the IPC intervention in the “practice phase.” Nevertheless, IPC counselors’ ability to use the IPC method was relatively good and other clinical competencies increased session by session, suggesting that IPC can be successfully delivered as school-based services. However, when implementing these evidence-based treatments at school, utilizing the key techniques of a specific method should be monitored and addressed in supervision during the course of treatment. By ensuring that, also the ability to deliver the treatment as intended is ensured.

The results suggest school- and profession-specific features need to be explored carefully beforehand, such as the amount of previous related training, or the expectations that the treatment delivers holds’ or that superiors have (Girio-Herrera et al., 2019). Also to be considered are the structural features, such as the impact of school curricula, resources for delivering such brief treatments, the time for supervision, and planning and learning the method (Mufson, 2010). Further to be kept in mind is the reality of student welfare services, such as the number of students and work duties one professional can handle (Hietanen-Peltola et al., 2019a, b). The results indicate as well that it is not a simple option to decide to offer brief treatment methods at student welfare services. Feasibility and acceptability measures show that student welfare workers want to have new tools to face students with depression, but, at the same time, it was difficult to find participants to take part in the intervention. The welfare workers were learning a new way of working as they were not familiar with using a structure, or to measure well-being or depression regularly, nor to plan six sessions ahead. This way of working seemed to be mostly unfamiliar to the staff at student welfare services, but not for all. Another issue that needs consideration is the readiness of those professionals to change the way they are working, and what that would require (Masia Warner et al., 2013). During the course of this study, the surrounding structures were working well; the student welfare workers had support from superiors (e.g., permission to use time to learn the method and plan sessions), they could get help from professionals in special health care, and they received support from a supervisor (IPC counselors) or in group meetings (BPS counselors). These aspects are also suggested to be important when planning to implement treatment in school-based services (Girio-Herrera et al., 2019).

Overall, our results demonstrate that IPC can be learned and delivered not only by psychologists, but also by student welfare workers who have less specific training in mental health issues and the treatment of youth depression (social workers and health care nurses). Both IPC and BPS interventions seem to be feasible as school-based services, similar to individual consultation that already exists at student welfare services. Both interventions were deemed acceptable by both students and student welfare workers. The interventions showed promise in preventing more severe depression and support the idea of reaching adolescents early on and in the vicinity of their daily life (Bertha & Balázs, 2003). Finally, our findings imply that structured brief interventions, such as IPC and BPS, are effective in treating mild to moderate depression in school settings and the results can be maintained at least up to 6 months after the intervention. Therefore,

even if student welfare services do not usually base their practice on the treatment of mental illness, brief treatment methods seem to fit well into their services and could be used as a typical individual welfare service at school. Thus, even if adolescents depression were diagnosed for this study, providing IPC and BPS at student welfare services require no diagnosis, but depressive symptoms. However, it requires support, resources and structure to be able to deliver such treatments at school, and the sufficiency of resources to deliver such brief treatments should be evaluated regularly.

4.5 Strengths and limitations

A clear strength throughout the whole dissertational process were the methodological ways used to approach student well-being from various angles. Student well-being was approached longitudinally from prior to school age to the first years in school. This methodological way of importing knowledge about a crucial time phase, through the transition into school, demonstrates that problems in psychosocial functioning and low linguistic abilities may start to coincide early on; problems are not evolving as secondary reactions to struggling with learning at school. Thus, the first years at school seem to work well in Finland. Furthermore, expectations and norms seem to vary between genders. In examining the important time phase of the end of basic education, a person-oriented approach was used to understand each student's well-being comprehensively; the strength of this approach is that it enables gaining knowledge of multiple aspects simultaneously. Knowledge from school motivation and emotional well-being profiles were gained; the role of basic academic skills seemed to vary. It was possible to recognize certain similarities and differences across profiles among the adolescents; for instance, some of the profiles seemed to be more directly linked to the level of basic academic skills while the link appeared to be more complex in others. This indicates that considering only links to learning results is not sufficient to provide support at school; we need to be aware of students' school motivation and emotional well-being as well when building support systems – highlighting the significance of gaining a comprehensive view of student well-being.

Finally, another strength was exploring a new tool to treat adolescent major depressive disorder (MDD) in a real-life study setting, at school, promoting an environment where all adolescents have equal and easy access to support that is potentially less stigmatizing than clinic-based services. This intervention study in school settings assured that student welfare workers are able to deliver an effective, structured and evidence-based intervention (IPC) with minimal training and regular supervision. Further data were also gained through the routine work of student welfare services, since the BPS counselors were able to assimilate their routine way of working with the structure the control treatment demanded. Applying the structure and targeted focus of the program in the face of students' potentially damaging mental health difficulties was vital. These considerations strengthen the external validity of the findings.

In terms of ethics, all of the studies were conducted according to the ethical standards required for human research studies by the ethical committees of the University of Jyväskylä and Helsinki University Hospital. All of the individuals in the three studies received a handout describing the study set before the research commenced. All participating children and students and their parents or legal guardians provided their written informed consent to take part in the research. The participants in Study I were recruited through maternity clinics, whereas the participants in Studies II and III included junior high school students recruited in natural surroundings, at school. In all studies, the participants were randomly chosen, but the focus in Studies I and III had certain criteria for whether or not participants were admitted; in Study I, half of the families had to have dyslexia and the other half no signs thereof. In Study III, all participating students had to have mild to moderate major depression disorder, but not any severe depression or severe other mental health disorders. Finally, the limitations, reliability and validity of the three studies are considered next.

There are several limitations that need to be considered when evaluating this dissertation and its contributions. First, all of the studies were conducted in Finland, where the school system and the services provided may differ from those of other countries; generalizing the findings to very different educational systems should be done carefully. Similarly, student welfare services in Finland may differ from those used in other countries, and generalizing the findings to other countries should be undertaken with careful consideration. Differences between the different areas in Finland should not be a problem as equality across Finnish schools is a well known issue and required by Finnish law.

Second, methodological weaknesses were also apparent in all studies. Both Studies I and III included relatively small samples. Therefore, caution should be taken accordingly when interpreting the results. In addition to the relatively small sample sizes, the data of Study I consisted of families who took part in the study from the beginning and stayed through 10 years. Thus, it may be biased toward those who were motivated to take part and had the strength to be part of the study for several years, while the data in Study III may be biased toward the inclusion of depressed youth who were motivated to engage in six treatment sessions and in the evaluation process before beginning treatment. However, samples are typically small in real-life intervention studies. In contrast, the sample in Study II was large.

Although dropping out of treatment was uncommon in Study III, adolescents' refusal to participate in the study before the baseline assessment and/or student welfare workers' inexperience in administering the screening procedures may have been issues. Unfortunately, we were not able to definitively assess the numbers and rate of pre-assessment refusal. At present, Finnish adolescents may self-refer to school-based services without parental knowledge. Such privacy, which many adolescents may wish to retain, was not possible in the clinical trial and could have influenced adolescents' unwillingness to participate in the pre-

liminary stage. Furthermore, anecdotal comments from the IPC and BPS counselors suggested that adolescents' unwillingness to obtain parental consent was a frequent reason for not participating.

However, despite the small sample size, a strength in Study I was that the dyslexia diagnoses were based on several individually assessed measures; and, similarly, in Study III the sample consisted of adolescents whose depression was measured, including individual assessments with a diagnostic measure. In comparison, in Study II, reading and math skills were assessed in a group situation, which may have affected the results as group situations cannot be controlled as well as individual evaluation sessions. In addition, a cutoff of 25% was used to determine learning difficulty, which is quite lenient, although it is commonly used (e.g., Murphy et al., 2007). In addition, in Study III the qualitative analyses included only a subgroup of adolescent participants. Thus, these results may not have fully captured all of the adolescents' perceptions of the treatments and associated changes.

In Study I, only parental evaluations of children's psychosocial functioning were used. Adults in the home environment were, however, also the only source of skills evaluation available across the study's long time span (ages 4-9). It is suggested that parental reports are better for capturing the "inner feelings" of young children than teachers' reports (e.g., Morgan et al., 2012). Thanks to the long time span, it was possible to assess causal links between psychosocial functioning and learning difficulties, whereas Study II was cross-sectional; therefore, it was not possible to address causal links between skills, motivation, and well-being. In Study III, results considering MDD were gained relying solely on adolescents' own reporting, and therefore the baseline information, such as socioeconomic data, may not be as reliable as parents' reports. Furthermore, the clinician assessments during the treatment and follow-ups were not masked, which may have inflated the effects in the direction of the desired outcome. However, changes in these assessments were clearly going in the same direction and were of comparable magnitude as the self-report measures. A second methodological limitation is that clinicians conducting the K-SADS-5 interviews were not blinded to the treatment condition. Furthermore, instead of video-recorded live sessions, IPC counselors' adherence to the key IPC principles was evaluated by the supervisors based on the IPC counselors' verbal reports during supervision sessions. Therefore, the possibility for biased or inaccurate reporting cannot be ruled out.

Third, environmental factors are potentially important when considering student well-being but were not included in the analyses. In Study I, a nurturing warm family climate at home or contrastingly the possible negative impact of divorce, as well as the support children received at home and from teachers at school, may have affected their psychosocial functioning and also their reading skills. In Study II, the quality of special education in school and of the support from the teacher or the use of student welfare services were not examined or controlled for. Also, support from friends, family and other close relations, as well as the quality of leisure time activities and hobbies, were not measured. However, to be able to control the data the research needs to target specific issues, and thus

not everything could be included. In Study I, the target was to analyze both parental evaluations and children's reading skills, whereas in Study II the aim was to analyze the students' own evaluations as well as their actual academic skill levels, and Study III was an intervention study in a real school setting where the randomization may have had an impact on the results. The student welfare workers at each specific school could have been more motivated toward learning the new IPC method rather than use BPS; thus, perhaps they were more eager to assess adolescents' depression and were therefore more likely to offer the IPC treatment. This may have had an impact on the number of adolescents in each group as the IPC group was larger. However, clinicians in both groups confirmed the validity of the process.

4.6 Implications and future directions

Overall, these three ways of approaching student well-being from different angles and using different methodological approaches were used to address the developmentally significant periods of the transition into school and the end of basic education, formulating a coherent view (as presented in Figure 1) where all concepts were related to well-being at school, and finally exploring a new common way to support students with depression at school. The first years of basic education appear to function well in Finland, since children with difficulties in literacy skills do not seem to show secondary psychosocial difficulties stemming from reading problems. Similarly, most adolescents, during their final year of basic education, feel emotionally well regardless of their basic academic skill level. Multiple issues seem to be addressed effectively in Finnish schools, such as the requirement of equality on which the Finnish educational system is built; irrespective of ethnic origin, age, wealth or where a person lives, education is free at all levels from preschool up to higher education (Law of Education, 628/1998). Naturally, all other preventive aspects, such as communal and individual work in student welfare services or general support according to three-tier support, are also important. All students have the same right to receive support for their learning, school attendance and education (Law of Education, 628/1998), as well as support for their well-being from student welfare services (Student Welfare Act, 1287/2013). Which are also recognized as a working service for mental health internationally (Coburn, 2019). Thus, modifications should be built on the existing, well-functioning structures.

The findings for the early developmental period indicate that problems of inattention as well as adaptability and social skills emerge early on among children later diagnosed with dyslexia, suggesting that these may be risk factors of dyslexia. However, this connection should be studied further. Only inattention seems to be at a high level when children are school-aged, possibly reflecting the high comorbidity with dyslexia. In addition, gender-specific associations were indicated, reflecting potentially different parental and cultural expectations for genders. However, the size of the effects was moderate and not all children with

later dyslexia had difficulties with attention or adaptability and social skills earlier on. Further research, however, is also needed to understand the mechanisms behind the early preschool links between dyslexia and psychosocial functioning.

Even if equality is one main value in the Finnish school system, the findings of this dissertation suggest heterogeneity among adolescent student well-being profiles and a link to basic academic skills or learning difficulties. And the findings clearly indicate that low basic academic skills or learning difficulties are not always signs of problems in other domains, not directly telling anything about school motivation or emotional well-being. Therefore, school personnel need to look beyond achievement at school and to support individual strengths, which all students have, as well as pay attention to subtle signs concerning students' well-being. In theory, the new national core curriculum already emphasizes individual learning paths and the importance of motivation and well-being (OPH, 2014). However, it remains unresolved whether the resources in real-life situations at school respond in a sufficient manner to varying individual needs or learning paths (OAJ, 2017).

Worrying finding of this dissertation was that 7% of the students had a combination of low levels for all of the considered factors: low school motivation and low emotional well-being as well as low basic academic skills and a high prevalence of learning difficulties. Among these adolescents' low task-focused behaviors, specifically low reading comprehension and low math skills became apparent. As learning and motivational difficulties are suggested to develop reciprocally and accumulate over time (Roeser et al., 1999), resources should be allocated at the first sign of problems. The working approach at school, for example in student welfare services, is mainly preventive, and thus it already aims to support school attendance and learning concerning previously accumulated problems; however, in practice, the work at school may actually be mostly extinguishing fires rather than preventing them beforehand, so to speak. If school personnel only have resources for reacting when problems are already causing harm to individuals, then problems may begin to accumulate and a student could subsequently end up having low well-being, low motivation, and low skills. These issues further underline the importance of supporting individual learning paths, since not all students might benefit from the same type of educational support. In addition, a more comprehensive approach is needed at school to be able to support the whole package: motivation, well-being, and learning. Support should also be flexible and adjustable over time, and someone has to keep an eye on progress in a comprehensive way as the difficulties may change over time. For example, a student might need support for learning to read during the first years at school, but at the end of the basic education the need might be different and he or she requires support in maintaining school motivation. The accumulation of problems deserves more study, as does the role of resilience, what causes accumulation?

Mixed profiles of school motivation and emotional well-being found in this study imply that these closely related areas may also be distinct, independent from each other. Interestingly, low school motivation seems to be directly linked

to low basic academic skills, whereas the link between emotional well-being and basic academic skills seems to be more indirect. Especially, poor reading fluency was linked to low school motivation; in contrast, students with at least average school motivation had high reading fluency. This may reflect the importance of reading fluency for success at school, which may underlie both school motivation and commitment to school. However, even if basic academic skills are low in addition to motivation toward school, a student may have no problems in emotional well-being. He or she might have other areas of interest supporting her/his emotional well-being, rather than school-related areas, reflecting that their self-esteem, for example, is not as sensitive to their level of academic achievement as it may be for other students. This can also suggest that they may have accepted their low skills at school (e.g., Ingesson, 2007). These students might be in danger of dropping out of school and it is worth considering ways to support and increase such students' school motivation. This link between low school motivation and low basic academic skills, especially low reading fluency, should be studied in future – what is mediating the link?

The finding of the link between low basic academic skills and low school motivation as well as between low emotional well-being and high basic academic skills needs to be explored further. Gender differences may also partially explain these associations. Boys were overrepresented in the mixed group with low motivation, whereas girls were overrepresented in the mixed group with low well-being. Gender differences in reading fluency were suggested in a previous PISA report favoring girls (OECD, 2017), and gender differences in relation to motivation and well-being were also suggested earlier (e.g., Roeser et al., 1998), as explained before. A new report from Finland indicates that these gender differences seem similar between different schools, and cultural norms and parents' as well as teachers' expectations may partly explain these differences (Pöysä & Kupiainen, 2018). However, the national core curriculum highlights the importance of equality in terms of genders at school (OPH, 2014); achieving this noble aim may be slow, but at least it is being addressed. Resources should be directed toward ways to intervene in situations of pronounced differences between gender roles – how much can be done at school if the impact of gender roles has already begun from early childhood at home?

Worth noticing is the finding indicating high basic academic skills and average school motivation among students whose emotional well-being was low. Do a high level of school motivation and school burnout partly overlap? Moreover, how about the role of school burnout and low self-esteem; do these mediate depression in the end? Are the pressures during the final year of basic education too much for some students to handle? In spite of causation, this implies that Finland's school system is not prepared for situations where high achievers may need emotional support as well. They might not ask for any support and may seem to be okay, but, at the same time, they may feel exhausted, have low self-esteem, and could be feeling low. These students may just need an adult who asks and listens; being able to spot low emotional well-being requires being able to observe and be aware of subtle signs. Accordingly, school personnel should

work harder on emphasizing the importance of the big picture. While concentrating on academic success is important, the areas which maintain well-being should be kept in the balance with academic goals.

In short, screening for well-being at school is important. Screening already happens in the form of health inspections carried out by the school nurse. However, screening is not enough if problems are found. Individual work in student welfare services is already happening, but brief treatment methods are still lacking (Haravuori et al., 2017; Ranta et al., 2018). Brief treatment in student welfare services seems to be one way to prevent symptoms from becoming more severe. The results of this dissertation validate, for the first time, the effectiveness, acceptability and feasibility of brief treatments at student welfare services regarding mild to moderate depression. Suggesting that brief supportive intervention that include a structure: focused, frequent sessions as well as systematic and repeated symptom monitoring may be sufficient for reducing depression in youth. Nevertheless, multiple questions remain open.

The comparison treatment, BPS, was supposed to be usual support provided in student welfare services, but as it needed to be comparable with IPC it ended up being different; hence, a new brief treatment model was actually created unexpectedly out of necessity. As both IPC and BPS were found to be effective treatments for improving adolescents' mild and moderate depression in the school setting, components predicting or moderating the effect need to be explored further. In this study, IPC seemed to be an effective intervention even when students had moderate, not only mild, depression and comorbid anxiety disorders. In the BPS group, adolescents with moderate depression or comorbid anxiety disorder were almost none. This also opens up another question; that is: Why did adolescents treated with IPC differ from those treated with BPS in terms of their baseline severity of symptoms and comorbid anxiety disorders? Did the IPC method encourage clinicians to treat more severely depressed adolescents? Further studies on IPC in the school context with an active comparison treatment and with larger samples are needed. The results of this study are not able to answer the question of who benefitted more from IPC compared to BPS, but aspects mediating benefits should be studied in future. At least, according to the qualitative analysis of a subsample of adolescents, talking with somebody who understands seem to be important. Considering the specific method, the structure seem to be vital for counselors and it is also important to supervise the use of the IPC method.

The results indicate as well that the structural features, such as previously mentioned resources for delivering such brief treatments, support from superiors, the time for supervision, and planning and learning the method are needed. It is not a simple option to decide to offer brief treatment methods at student welfare services as it requires that the structural features are adequate, in addition to the method. Feasibility and acceptability measures show that student welfare workers were learning a new way of working. Another issue that needs consideration is the readiness of those professionals to adapt the way they are working. Thus, results demonstrate that both IPC and BPS interventions seem to be feasible as

school-based services, provided by existing student welfare workforce and is comparable to individual consultation that already exists at student welfare services. However, possibilities for maintaining brief treatments at student welfare services without the given scaffolding of certain resources, such as provided by this research project, need to be evaluated in future. At least during the beginning, the scaffolding may be essential.

4.7 Concluding remarks

This dissertation has increased the existing knowledge of the development of the associations between well-being and learning difficulties during the early school years as well as their appearance during the final year of basic education. Early experiences in school do not seem to have a negative impact on psychosocial functioning; problems with psychosocial functioning seem to manifest themselves already prior to school age if children have poor reading skills; this issue seems to be more diverse during adolescence. While most students are surviving the jungle of school without learning difficulties, poor academic skills or bigger problems, a substantial number of adolescents have either low motivation, low emotional well-being, or both at the end of the basic education. Low emotional well-being was associated with basic academic skills only if the student also had low school motivation. Therefore, students seem to show heterogeneity in the associations between well-being and learning. For those who are not feeling well and who have depression, brief treatment seems to be one option for intervention through student welfare services. Both IPC and BPS seem to fit well into school, and are acceptable according to the adolescents and student welfare workers. It seems possible to use the existing workforce to provide brief, active treatments in an effective way in order to reduce symptoms of mild to moderate depression and improve adolescents' functioning and psychological well-being.

The findings of this dissertation highlight that even if basic academic skills are suggested to be one of the most important indicators of a student's future development and education, the school needs to be aware of other aspects, such as the students' well-being, as well. And it is vital to consider student well-being in a comprehensive way, as presented in Figure 1. It is impossible to see from academic achievements alone who needs support and attention at school. When learning difficulties exist at school, the support system should address these individually, and, possibly, target improving well-being as well.

In the schools' corridors walk students who do not make any noise or attract any special attention in the eyes of teachers, parents, or society. Those children and adolescents who seem to be doing "just fine" may not actually be fine. Underneath may be a student who needs someone to see and listen to him or her. The need may not become apparent to others until something abnormal happens. This abnormality may be acting out at school, self-harming, dropping out of school lessons, or untreated depression. Therefore, more attention toward those children and adolescents who seem to be doing "just fine" is needed as well. A

teacher might generally be the key person to notice these students with a preventive view, and might refer such a student to the student welfare services when concerned. However, to guarantee this, resources for both noticing the problem and providing the support are crucial. After all, all students are individuals, individuals who may need support and attention, or at least to be asked the question—“How are you?”—and space and time to wait for an answer other than a quick, dismissive “okay” is needed.

YHTEENVETO (SUMMARY)

Oppimisvaikeuksien rooli ja lyhythoito oppilaan hyvinvoinnissa

Koulun rooli lapsen ja nuoren kehitykselle on merkittävä; vaikutus ulottuu niin hyvinvointiin kuin tulevaisuuden työelämään asti. Myös hyvinvoinnin merkitys lasten ja nuorten oppimisen tukena on tunnustettu keskeiseksi asiaksi sekä kansainvälisesti että kansallisesti. Tästä huolimatta osa Suomen koululaisista voi pahoin. Tämän tutkimuksen ensimmäinen teema on hyvinvoinnin ja oppimisvaikeuksien yhteys, jota ensi vaiheessa selvitettiin tutkimalla koulusiirtymää pitkitäistutkimuksen avulla ja toisessa osavaiheessa tutkittiin peruskoulun päättövaihetta profiilianalyysin keinoin. Toisena teemana on hyvinvoinnin tukeminen koulussa, eli selvitettiin lyhythoidon soveltuvuutta yläkoulujen oppilashuoltoon, sen hyväksyttävyyttä ja tehokkuutta masennuksen hoidossa. Interventiotutkimuksessa vertailtiin kahta hoitomuotoa yläkoulujen oppilashuolloissa.

Ensimmäinen osatutkimus käsitteli hyvinvoinnin ja oppimisvaikeuksien yhteyden varhaista kehittymistä. Tutkimuksessa selvitettiin, lisäävätkö koulussa kohdatut oppimisen haasteet hyvinvoinnin ongelmia sekundaarisesti vai ovatko hyvinvoinnin ongelmat mahdollisesti esillä jo ennen kouluikää niillä lapsilla, joilla on oppimisvaikeutta. Pitkittäistutkimuksen avulla tarkasteltiin syy-seuraussuhteita. Tutkimusaineistona käytettiin Lapsen Kielen Kehitys ja Familiaalinen Dysleksiariski -seurantatutkimukseen (LKK) osallistuneita lapsia, joiden vanhemmat olivat arvioineet lastensa psykososiaalista hyvinvointia (sopeutuvuus ja sosiaaliset taidot, tarkkaamattomuus, ulospäin- ja sisäänpäin suuntautuva käyttäytyminen) 4, 6 ja 9 vuoden iässä. Lasten lukivaikeus todettiin 8 vuoden iässä yksilöllisin lukitestein. Psykososiaalisen hyvinvoinnin kehitystä lapsilla ja muutosta ajassa lukivaikeuden suhteen sekä yhteyden samanlaisuutta tyttöillä ja pojilla tutkittiin toistomittausten monimuuttuja-analyysillä (MANOVA).

Tutkimuksesta ilmeni, että lukivaikeuksia omaavilla lapsilla oli tyypillisesti lukeviin lapsiin verrattuna myös heikommat taidot sopeutuvuudessa ja sosiaalisissa taidoissa sekä tarkkaavuuden pulmia jo alle kouluikäisinä. Lisäksi lukivaikeuden yhteys muutokseen psykososiaalisessa hyvinvoinnissa ilmeni erilaisena tyttöillä ja pojilla. Johtopäätöksinä voidaan todeta, ettei koulun aloittaminen lisää psykososiaalisen hyvinvoinnin ongelmia lapsilla, jotka kohtaavat lukemisen haasteita koulussa. Lukivaikeus ja psykososiaalinen hyvinvointi näyttävät olevan yhteydessä toisiinsa jo varhaisessa vaiheessa, ennen kouluikää. Sukupuolten väliltä löytyi eroja. Pojilla, joilla oli lukivaikeutta, tarkkaamattomuus oli korkealla tasolla koko seuranta-ajan, mutta heidän sosiaaliset taitonsa kehittivät koulusiirtymässä. Lukivaikeuksia omaavien tyttöjen tarkkaamattomuus näytti lisääntyvän kouluun siirryttäessä, samoin kuin tyypillisesti lukevien tyttöjen tarkkaamattomuus lisääntyi. Sen sijaan tyttöjen sosiaalisissa taidoissa ei tapahtunut ajan kuluessa muutosta. Olisi tärkeää suunnata huomio oppimisvaikeuksien ja hyvinvoinnin yhteyden tarkasteluun jo varhaisissa vaiheissa, jotta osataan tarjota oikeita tukitoimia.

Toisen tutkimuksen tarkoituksena oli selvittää peruskoulun päättövaiheessa olevien oppilaiden hyvinvointia, sekä hyvinvoinnin yhteyttä oppimisvaikeuksiin ja akateemisiin taitoihin. Profiilianalyysin avulla tutkittiin sekä emotionaalisen hyvinvoinnin että koulumotivaation muuttujia yhtä aikaa. Lisäksi tutkittiin näiden hyvinvointiprofiilien yhteyttä oppimisvaikeuksiin ja akateemisiin taitoihin. Tutkimuksen kohteena oli suuri joukko yhdeksännen luokan oppilaita (N=1629) juuri ennen toisen asteen opintoihin siirtymistä.

Oppilaan hyvinvointia kuvasi viisi erilaista profiiliryhmää: ensimmäisen ryhmän profiili oli korkealla tasolla sekä emotionaalisen hyvinvoinnin että koulumotivaation suhteen (N=178), toinen profiili oli keskitasoa molemmissa (N=1107) ja kolmas profiili taas matalalla tasolla molemmissa (N=121). Kaksi profiileista oli eritasoisia, sillä pääosin pojista koostuvassa profiiliryhmässä vain koulumotivaatio oli alhainen (N=140), ja toisessa lähinnä tytöistä koostuvassa profiiliryhmässä puolestaan emotionaalinen hyvinvointi (N=83) oli alhainen. Yhteys akateemisiin taitoihin vaihteli. Heikosti motivoituneilla oppilailla oli myös heikot akateemiset taidot, kun taas oppilaan heikko emotionaalinen hyvinvointi oli yhteydessä akateemisiin taitoihin vain myös koulumotivaation ollessa heikkoa.

Hyvinvointi näyttäytyi moninaisena nuoruudessa; oppimisen vaikeuksista huolimatta suurin osa oppilaista näyttää voivan hyvin peruskoulun viimeisenä vuonna, neljäsosalla oppilaista on kuitenkin joko koulumotivaation pulmaa, alhainen emotionaalinen hyvinvointi tai molempia. Lisäksi heillä voi olla oppimisen vaikeutta. Akateemiset taidot näyttivät olevan suoraan yhteydessä alhaiseen koulumotivaatioon sekä epäsuorasti yhteydessä alhaiseen emotionaaliseen hyvinvointiin. Eli koulussa tulisi oppimistulosten lisäksi huomioida myös oppilaan motivaatio ja hyvinvointi, jotta tuki kohdentuisi oikein – kaikki eivät hyödy samanlaisesta tuesta. Toisaalta pelkästään oppimistuloksista ei voida päätellä hyvinvoinnin tasoa, tai vain hyvinvoinnin perusteella ei voi tehdä johtopäätöksiä oppimisesta.

Kolmannessa osatutkimuksessa tarkasteltiin koulun mahdollisuuksia tukea oppilaiden hyvinvointia silloin, kun nuorella on masennusoireita. Interventiotutkimuksessa vertailtiin kahden lyhytoitomallin soveltuvuutta, hyväksyttävyyttä ja tehokkuutta yläkoulujen oppilashuollossa. Hoitomalleiksi valikoitui interpersoonallinen ohjanta (IPC) ja lyhyt psykososiaalinen tuki (BPS). IPC on masennusoireisiin strukturoitu kuuden kerran hoitomalli, joka on kehitetty myös muiden kuin mielenterveyden ammattilaisten käyttöön (katso tarkemmin Weissman ym., 2014). Se pohjautuu pidempikestoiseen näyttöön perustuvaan interpersoonalliseen terapiaan. BPS vastasi oppilashuollossa tavanomaisesti annettua tukea, mutta se oli määrämittaunen (6 kertaa), hyvinvointia, toimintakykyä ja masennuksen tasoa tiivistä arvioiva, nuorta arviointiin osallistava sekä kohdistui masennusoireiden hoitoon, mutta sen sisältö vaihteli ohjaajan mukaan. Suuren kaupungin yläkoulut satunnaistettiin joko IPC- tai BPS-hoitoa toteuttaviksi, nuoret ohjautuivat koulunsa perusteella jompaankumpaan hoitoon seuraten tavanomaista reittiä oppilashuollon palveluihin. Lieviin tai keskivaikeisiin masennus-

oireisiin apua etsivät yläkoulun oppilaat otettiin mukaan tutkimukseen kaksivaiheisen seulonnan jälkeen, ensimmäisen lyhyen masennusseulan toteutti oppilashuollon työntekijä, toisen diagnostisen haastattelun toteutti tutkija. Intervention aloitti 55 nuorta.

Nuorten masennusta, toimintakykyä ja yleistä hyvinvointia mitattiin strukturoidusti hoitojen aikana ja kahdessa seurantatapaamisessa. Hoidon soveltuvuutta oppilashuoltoon arvioitiin hoidossa pysyneiden nuorten määrällä sekä hoitojen ja seurantojen toteutumisen perusteella. Hoitojen hyväksyttävyyttä nuorten näkökulmasta arvioitiin laadullisen haastattelun avulla (17 nuorta) ja tutkimukseen kehitetyn kyselyn avulla selvitettiin ohjaajien tyytyväisyyttä. Lyhythoidon (IPC ja BPS) käyttö koulujen oppilashuollossa osoittautui tehokkaaksi masennusoireiden lieventämisessä sekä hyvinvoinnin ja toimintakyvyn lisäämisessä. Hoitomuotojen välillä ei ollut eroa. Suurin osa, 89%, nuorista kävi hoidon loppuun seurantatapaamiset mukaan lukien. Nuoret ja ohjaajat olivat pääasiassa tyytyväisiä hoitoon, sekä IPC että BPS malliin mutta osa nuorista tarvitsi jatko-hoitoa ohjannan jälkeen. Lyhyt, strukturoitu interventio näyttää olevan hyödyllinen nuorten masennuksen hoidossa ja sovellettavissa koulun oppilashuoltoon.

Kokonaisuudessaan voidaan todeta, että peruskoulun ensimmäiset vuodet näyttävät sujuvan hyvin, sillä koulussa kohdatut oppimisen haasteet eivät näytä lisäävän hyvinvoinnin ongelmia lapsilla, jotka kohtaavat oppimisen ongelmia. Samoin suurin osa peruskoulun viimeisellä luokalla olevista nuorista voi hyvin ja on motivoituneita koulunkäymiseen, riippumatta oppimisvaikeuksista tai heikoista akateemisista taidoista. Lisäksi sukupuolten väliset erot näkyivät psykososiaalisessa hyvinvoinnissa kouluun siirryttäessä sekä yläkoulun viimeisenä vuotena tutkimuksen kohteena olleiden nuorten sijoittumisessa hyvinvoinnin profiilin mukaan eri ryhmiin. Nämä erot näyttävät vahvistavan sukupuoleen liittyvien odotusten vaikutusta lasten ja nuorten hyvinvoinnissa. Tähän olisi tärkeää kiinnittää jatkossa enemmän huomiota. Osa oppilaista ei voi hyvin peruskoulun päättövaiheessa: osalla on heikko koulumotivaatio tai osa voi emotionaalisesti huonosti tai osalla on nämä molemmat sekä lisäksi oppimisvaikeuksia. Oppimisvaikeudet eivät kuitenkaan aina ole yhteydessä oppilaiden hyvinvoinnin ongelmiin, hyvinvoinnin sisällä myös emotionaalinen hyvinvointi ja koulumotivaatio voivat olla vastakkaisia.

Koulussa olisi tärkeä huomioida oppilaat yksilöinä eikä tuijottaa pelkästään arvosanoja, sillä tuen tarvetta ei näe pelkästään ulkoisista asioista. Lisäksi kouluissa kohdataan useita nuoria, jotka näyttävät voivan hyvin, mutta heillä voi myös olla hoitoa vaativia masennusoireita. Koulujen oppilashuollossa työn pitäisi pääosin olla ennaltaehkäisyä, neuvontaa ja tukemista, mutta nykyisellään työ painottuu paljolti korjaavaan työhön. Ennaltaehkäisyä ja korjaavaa työtä voisi tehdä vielä tehokkaammin; oppilashuollon työntekijät voisivat jo nyt hoitaa masennusoireita potuvia nuoria tehokkaasti IPC:n tai BPS:n mukaisella työotteella. Lyhythoidon tekeminen koulujen oppilashuollossa edellyttää myös rakenteellisia muutoksia, kuten resursseja (mm. aikaa suunnittelulle) ja vahvaa tukea esimiehiltä.

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ORIGINAL PAPERS

I

PSYCHOSOCIAL FUNCTIONING OF CHILDREN WITH AND WITHOUT DYSLEXIA: A FOLLOW-UPSTUDY FROM AGES FOUR TO NINE

by

Pauliina Parhiala, Minna Torppa, Kenneth Eklund, Tuija Aro,
Anna-Maija Poikkeus, Riikka Heikkilä & Timo Ahonen, 2015

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■ Psychosocial Functioning of Children with and without Dyslexia: A Follow-up Study from Ages Four to Nine

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This longitudinal study compares developmental changes in psychosocial functioning during the transition into school of children with and without dyslexia. In addition, it examines the effects of gender and family risk for dyslexia in terms of the associations between dyslexia and psychosocial functioning. Children's psychosocial functioning (social skills, inattention and externalizing and internalizing problems) was evaluated by their parents at ages 4, 6 and 9, and diagnosis for dyslexia was made at age 8 (in grade 2). The findings indicated that children with dyslexia were already rated as having poorer social skills and being more inattentive than were typical readers before their entry into school. Significant interactions of gender and diagnosis of dyslexia emerged for social skills and inattention. The social skills of boys with dyslexia improved after school entry as compared to the level of girls without dyslexia, whereas the social skills of girls with dyslexia did not improve. Boys with dyslexia were rated as showing a high level of inattention both prior to and after school entry, whereas, for girls with dyslexia, inattention ratings increased after school entry, eventually matching the boys' levels. Copyright © 2014 John Wiley & Sons, Ltd.

Keywords: dyslexia; social skills; inattention; externalizing and internalizing problems; longitudinal study; family risk study

Individuals with dyslexia have been reported as exhibiting more difficulties in psychosocial functioning than those without reading problems, especially in the domains of social skills, behaviour (externalizing and internalizing problems) and/or attention (e.g. Dahle, Knivsberg, & Andreassen, 2011; Morgan, Farkas, & Wu, 2012). Because studies have typically focused on school-age development, it is unclear whether problems with psychosocial functioning co-occur with dyslexia or whether they emerge as secondary problems due to difficulties experienced with learning in school. Psychosocial problems identified prior to school entry among children later diagnosed with dyslexia would suggest that these problems are not a consequence of experienced difficulties in learning to read at school. On the other hand, an increase in psychosocial functioning problems after school entry that appear selectively among children with dyslexia would

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suggest that these are secondary problems, arising as reactions to difficulties in meeting school demands. In the current study, we carried out a 5-year follow-up from ages 4 to 9 on the development of children with and without dyslexia. The follow-up period included the transition to school at age 7 and thus allows longitudinal examination of changes in psychosocial functioning (social skills, inattention and externalizing and internalizing problems) throughout the school-entry phase.

READING DIFFICULTIES AND PSYCHOSOCIAL FUNCTIONING DOMAINS

Social skills and peer relations are domains of psychosocial functioning that are relevant to both school adjustment and achievement (Ladd, Birch, & Buhs, 1999; Wentzel & Caldwell, 1997). Previous studies have reported links between social skills and reading problems. Kempe, Gustafson and Samuelsson (2011) recently reported more problems in social functioning among children with reading problems than typical readers in grade 1 but no differences between the two groups in social functioning trajectories from grades 1 to 3. Studies among adolescents have also found more social problems among youth with dyslexia than typically reading adolescents (Terras, Thompson, & Minnis, 2009; Undheim & Sund, 2008).

The second domain of psychosocial functioning included in the present study, inattention, has also been connected to dyslexia in several previous studies (e.g. Carroll, Maughan, Goodman, & Meltzer, 2004; Kempe et al., 2011; Snowling, Muter, & Carroll, 2007; Willcutt et al., 2007). Studies conducted among individuals diagnosed with attention deficit hyperactivity disorder indicate that dyslexia is strongly connected with inattentiveness and less strongly with hyperactivity and impulsivity (e.g. Dahle et al., 2011; Willcutt & Pennington, 2000a). Common genes or aetiology is thought to underlie the links between dyslexia and inattention (Willcutt, Pennington, Olson, Chhabildas, & Hulslander, 2005). Studies have also found an association between inattention and pre-reading skills (Willcutt et al., 2007). In addition, Kempe et al. (2011) reported that, among children with reading difficulties, inattention levels increased during the first three grades, whereas hyperactivity and impulsivity levels decreased.

The evidence for the link between dyslexia and externalizing problems (i.e. conduct problems and aggressive and impulsive behaviour [Achenbach & Edelbrock, 1978]) is mixed. Some studies have reported more externalizing problems among children with reading difficulties (e.g. Kempe et al., 2011; Morgan, Farkas, Tufis, & Sperling, 2008; Trzesniewski, Moffitt, Caspi, Taylor, & Maughan, 2006; Undheim, Wichstrøm, & Sund, 2011; Willcutt & Pennington, 2000b), whereas others have failed to find this connection (e.g. Snowling et al., 2007; Arnold et al., 2005). Some studies suggest that externalizing problems are a consequence of reading problems at school (Halonen, Aunola, Ahonen, & Nurmi, 2006; McNulty, 2003; Morgan et al., 2008), whereas others suggest common environmental factors behind dyslexia and externalizing problems (e.g. Trzesniewski et al., 2006). Researchers have also suggested that attention problems may mediate the association between dyslexia and externalizing problems (e.g. Carroll et al., 2004; Willcutt & Pennington, 2000b).

The fourth domain of psychosocial functioning included in the present study—internalizing problems (i.e. withdrawal, depression, anxiety and somatic problems

[Achenbach & Edelbrock, 1978]) – has also been associated with reading difficulties (e.g. Arnold *et al.*, 2005; Halonen *et al.*, 2006; Morgan *et al.*, 2008; Willcutt & Pennington, 2000b; Snowling *et al.*, 2007; Terras *et al.*, 2009; Undheim *et al.*, 2011). Internalizing problems among children with reading difficulties may stem from difficulties in studying school subjects (e.g. Carroll *et al.*, 2004; Willcutt & Pennington, 2000b) and from unfavourable comparisons made with typically reading children (Maughan & Carroll, 2006; McNulty, 2003; Rack, 1997). Some longitudinal studies, however, show no association between reading skills and internalizing problems (e.g. Kempe *et al.*, 2011).

GENDER DIFFERENCES IN PSYCHOSOCIAL FUNCTIONING AND DYSLEXIA

Several studies indicate that internalizing problems are more common among girls and externalizing behaviour is more common among boys (e.g. Achenbach & Edelbrock, 1978; Besser & Blatt, 2007). Furthermore, researchers have found that boys with dyslexia have problems with attention, self-regulation and social functioning, whereas girls with dyslexia more typically experience depression, withdrawal and somatic problems (Besser and Blatt, 2007, 2011; Trzesniewski *et al.*, 2006; Willcutt & Pennington, 2000b). Reading difficulties and externalizing behaviour are associated more strongly for boys than for girls (McIntosh, Reinke, Kelm, & Sadler, 2012; Trzesniewski *et al.*, 2006). Because girls and boys differ in their psychosocial functioning (DiPrete & Jennings, 2012), gender needs to be taken into account when examining links between dyslexia and psychosocial functioning.

THE PRESENT STUDY

In the present study, psychosocial functioning was followed up among children with and without dyslexia, between the ages of 4 and 9, using two parental evaluations of psychosocial functioning prior to school entry (at ages 4 and 6) and one evaluation after school entry (age 9). We analysed the data for differences in psychosocial functioning between children diagnosed with dyslexia at age 8 (in grade 2) and typically reading peers. This longitudinal design allowed us to analyse changes in psychosocial functioning in relation to the transition into school. The inclusion of psychosocial functioning measures at two time points before school entry adds to the current knowledge on the links between dyslexia and psychosocial functioning problems. Early signs of problems at preschool ages in social skills, inattention and externalizing or internalizing behaviour among children who develop dyslexia would suggest that psychosocial functioning problems are not a consequence of experiencing reading related difficulties at school. It would suggest that dyslexia and psychosocial functioning factors are linked in some other way. For instance, they may be co-occurring because of the same or co-occurring underlying factors (genetic or early environmental) or be bi-directionally linked in later development. On the other hand, if children with dyslexia show an increase in psychosocial problems after school entry whereas typically reading children do not, this would suggest a link between reading difficulties faced at school and an increase in psychosocial functioning problems.

The present study is part of an ongoing prospective study of children with and without family risk (FR) for dyslexia, examining the effects of FR on the link between dyslexia and psychosocial functioning. Prospective FR studies have demonstrated a greater risk for dyslexia for children with family risk, with an incidence of dyslexia varying from 35 percent (Pennington & Lefly, 2001; Puolakanaho et al., 2007; van Bergen, de Jong, Maassen, & van der Leij, 2014a) up to 66 percent (Snowling, Gallagher, & Frith, 2003) reported for FR children at school age, depending on the criteria used and orthography studied. The only study that examined the links between FR, dyslexia and psychosocial functioning (Snowling et al., 2007) showed that, in the UK, adolescents with FR and dyslexia have more problems in psychosocial domains, as compared to typically reading adolescents with or without FR. This finding suggests that problems in psychosocial functioning are linked to dyslexia rather than FR.

The present study was conducted in Finland, where children enter school in the autumn of the year that they turn 7 years old. It should be noted that, in Finland, learning demands change quite noticeably from kindergarten to school. The kindergarten curriculum (age 6) is play-oriented and does not involve, for instance, formal instruction of decoding skills or arithmetic. In contrast, the curriculum from grade 1 onwards sets goals for reading progress and demands for behavioural and cognitive self-regulation. The formal teaching of reading starts after school entry.

The specific research questions were as follows:

- (1) Are there differences in psychosocial functioning between children with and without dyslexia before school entry (ages 4 and 6) and/or after school entry (age 9)?
- (2) Are changes in psychosocial functioning (social skills, inattention and externalizing and internalizing behaviours) across the transition into school (from ages 6 to 9) similar or different among children with or without dyslexia when taking into account (a) gender and (b) FR for dyslexia?

METHOD

Participants

The present analyses included 170 children, who had been followed from birth in the Jyväskylä Longitudinal Study of Dyslexia (JLD) (e.g. Lyytinen et al., 2004, 2008). Of the original 200 children participating in the JLD study, those having no missing data at the ages of 4, 6 and 9 were included in the present study. Participating families were recruited with the help of maternity clinics throughout central Finland. Half of the participating children belonged to the FR group ($n=88$, 49 girls and 39 boys), where one or both parents were diagnosed as dyslexic and reported reading difficulties in at least one other close relative. In the control group ($n=82$, 36 girls and 46 boys), parents had no reading or spelling difficulties, and they reported no reading difficulties among close relatives. Parental reading and spelling were assessed with individual tests comprising reading, spelling, phonological and orthographic processing, before the child's birth (Leinonen et al., 2001). The FR and control samples showed no difference in

parental educational levels (Aro *et al.*, 2009). In addition, the control sample represented the Finnish educational distribution quite accurately. According to reports by Statistics Finland (2006), 11.6 percent of women and 17.8 percent of men have only primary education, 41.8 percent of women and 52.7 percent of men have secondary education and 46.6 percent of women and 29.4 percent of men have higher education. In this study, the percentage of those with primary education was 7.5 for women and 13.2 for men; for secondary education, 32.7 for women and 49.5 for men and, for higher education, 59.8 for women and 37.3 for men. All the children spoke Finnish as their native language and had no mental, physical or sensory impairments.

For this study, the 170 children were further allocated to two groups according to their literacy skills at the end of grade 2: dyslexia ($n = 39$, 20 girls and 19 boys) and no dyslexia ($n = 131$, 65 girls and 66 boys). Children in the dyslexia group fulfilled the diagnostic criteria for dyslexia described below, whereas children in the no dyslexia group did not. In the FR group, 30 children had dyslexia whereas, in the control group, 9 children had dyslexia.

Measures

The children's dyslexia was diagnosed based on literacy tasks measured at the end of grade 2. These were comprised of four measurements that assessed reading and spelling accuracy and four measurements that assessed reading fluency. These are discussed in more detail below.

Pseudoword/Word reading

Words and pseudowords –20 of each (10 3-syllable words and 10 4-syllable words)–were presented to the children to read successively on a computer screen. The number of correctly read words and pseudowords was used as a measurement of reading accuracy. The time from the word or pseudoword's appearance to the end of articulation (i.e. reaction time and response duration) was used as a measurement of reading fluency. This speed was calculated by hand.

Text reading

Children read aloud a short passage (124 words) presented on a sheet of paper. Children were instructed to read as quickly and accurately as possible. The percentage of correctly read words was used as a measurement of text reading accuracy. The average number of words read correctly per minute was used as the measurement of text reading fluency.

Reading pseudoword text

The task was to read aloud a short passage comprised of 19 pseudowords. The pseudoword text was generated from a story text by replacing 0–3 letters inside syllables so that the words and structure of the sentences resembled Finnish in form but had no meaning. The percentage of correctly read pseudowords was used as a measurement of pseudoword text accuracy. The number of pseudowords read correctly in 1 min was used as the measurement of pseudoword text reading fluency.

Word list reading fluency

A nationally standardized reading test, Lukilasse (Häyrinen, Serenius-Sirve, & Korkman, 1999), was used as the fourth measurement of reading fluency. Each child was asked to read aloud a list of words of increasing difficulty, printed on a sheet of paper. The number of words read correctly in two minutes was used to generate a standard score (following the manual's instructions).

Spelling accuracy

The spelling task was comprised of 6 dictated words and 12 pseudowords. All 18 words contained four syllables, and they were presented individually via headphones. The number of correctly written items was used as the measurement of spelling accuracy.

Dyslexia diagnosis

A score at or below the 10th percentile was classified as a deficit. A cut-off was determined for each task using the control group's distribution. A child was diagnosed as having dyslexia if he or she showed a deficit in one of three ways: at least three out of four measurements in reading and writing accuracy, at least three out of four measurements in reading fluency, or at least two accuracy and two fluency measurements.

Psychosocial Functioning

The children's psychosocial functioning was assessed using the Parent Rating Scale (PRS) of the Behaviour Assessment System for Children (BASC) (Reynolds & Kamphaus, 1992) when the children were aged 4, 6 and 9 years old. The BASC incorporates a multidimensional perspective of children's behaviour, including both adaptive and maladaptive aspects. Items are rated on a four-point scale ranging from 'never' to 'almost always'. The PRS has forms adapted for three age levels: preschool (ages 2–5), children (ages 6–11) and adolescent (ages 12–18). Because Finnish children enter school during the year in which they turn 7 years old, the PRS for preschoolers (PRS-P: 126 items) was used at 4 years old (preschool) and 6 years old (kindergarten). The PRS for children (PRS-C: 138 items) was used at 9 years old (grade 3). PRS-P involves items on children's behaviour in general, whereas PRS-C also includes items on school-related behaviour and emotions. The following composite score categories (and their respective scale scores, available in both PRS-P and PRS-C) were used in the present study: (1) adaptive skills (adaptability and social skills), (2) attention problems, (3) externalizing problems (aggression and hyperactivity) and (4) internalizing problems (anxiety, depression and somatization). We calculated the composite scores similarly at all ages using the procedure suggested for PRS-C in the BASC manual. Because the BASC scales have not yet been normed in Finland, we used standardized scores based on the score distribution for children in the control group. To be consistent with terminology used in the theoretical literature, the composite score derived from the BASC attention problems scale is referred to here as the measurement of inattention, whereas the composite score derived from the BASC adaptive skills scale is referred to as the measurement of adaptability and social skills. Cronbach's alpha reliabilities for the scales at the ages of 4, 6 and 9 were as follows: adaptability and social skills, 0.55, 0.75 and 0.72; inattention, 0.70, 0.77 and 0.79; externalizing,

0.74, 0.79 and 0.78 and internalizing, 0.69, 0.68 and 0.69, respectively. The direction of the scale for adaptability and social skills was reversed. Thus, for all scales, a higher score indicated more problems in the assessed domain.

Data Analyses

All variable distributions were found to approximate normal distribution. The few outlier values (situated more than three standard deviations from the mean value) were moved to the tails of the distributions. Data were analysed using SPSS 18 software.

RESULTS

Psychosocial Functioning, Family Risk and Dyslexia

Our first research question concerned the differences between children with and without dyslexia (measured in grade 2) in psychosocial functioning at ages 4, 6 and 9. Prior to the analyses, we examined the effect of FR because this is a central characteristic of our sample. The prevalence of FR for dyslexia in the present sample was 76.9 percent in the dyslexia group and 44.3 percent in the no dyslexia group. We examined FR's role in psychosocial functioning from ages 6 to 9. Mixed method analyses of variance (ANOVA) with dyslexia status (0 = no dyslexia, 1 = dyslexia) and FR for dyslexia (1 = FR, 2 = no FR) as between-level factors and time (1 = prior to school entry, 2 = at school age) as the within-level factor were conducted separately for the four psychosocial factors: adaptability/social skills, inattention and externalizing and internalizing behaviours. No significant main or interaction effects were related to FR status at ages 4, 6 and 9 ($F(12,155) = 1.23$); therefore, FR was not included in subsequent analyses.

The one-way ANOVAs comparing children with and without dyslexia (Table 1) showed that children with dyslexia had significantly more problems in adaptability and social skills than children without dyslexia prior to school entry (at ages 4 and 6). Children with dyslexia also scored significantly higher in inattention (indicating more attention problems) than typical readers at all three age points (i.e. both prior to and after school entry). No differences were found in externalizing or internalizing behaviour between the groups.

Dyslexia, Gender and Change in Psychosocial Functioning During School Entry

Next, we examined changes in psychosocial functioning as children entered school (i.e. ages 6 to 9) and the relationship of changes with gender or dyslexia status (diagnosis of dyslexia vs. typical reading ability). Psychosocial functioning measurements were standardized to allow comparisons across different ages (see Figure 1: note that all scales were set so that higher scores indicate more problematic behaviour). In the mixed method ANOVA models, the between-level factors were dyslexia status (0 = no dyslexia, 1 = dyslexia) and gender (3 = boy, 4 = girl) and the within-level factor was time (1 = prior to school entry, 2 = at school age). Mixed method ANOVAs were conducted separately for the four psychosocial

Table I. Psychosocial functioning and a comparison between groups with and without dyslexia

Age	No dyslexia (n = 131)				Dyslexia (n = 39)				F (1,168)	Cohen d
	M	SD	Min	Max	M	SD	Min	Max		
Adaptability and Social Skills										
4 years	44.39	6.96	23	65	40.62	6.27	30	52	9.23**	0.57
6 years	46.68	7.10	28	67	44.03	5.43	35	60	4.65*	0.42
9 years	41.42	8.02	22	63	41.87	8.89	20	62	0.91	-0.05
Inattention										
4 years	5.94	2.48	0	13	6.90	1.89	2	13	4.97*	-0.44
6 years	6.01	2.88	0	15	7.08	2.13	1	11	4.62*	-0.43
9 years	5.92	3.26	0	17	7.62	3.53	1	15	7.88**	-0.50
Externalizing Problems										
4 years	27.35	7.96	11	49	28.54	8.03	9	43	0.67	-0.15
6 years	23.92	8.41	8	49	25.03	9.31	7	54	0.50	-0.13
9 years	15.62	6.76	4	38	15.72	6.78	3	33	0.01	-0.01
Internalizing Problems										
4 years	19.69	7.50	5	40	20.03	6.01	3	31	0.07	-0.02
6 years	21.90	8.56	2	51	22.46	7.67	3	37	0.14	-0.07
9 years	16.83	7.79	2	41	17.13	7.42	4	38	0.04	-0.04

M, mean; SD, standard deviation * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

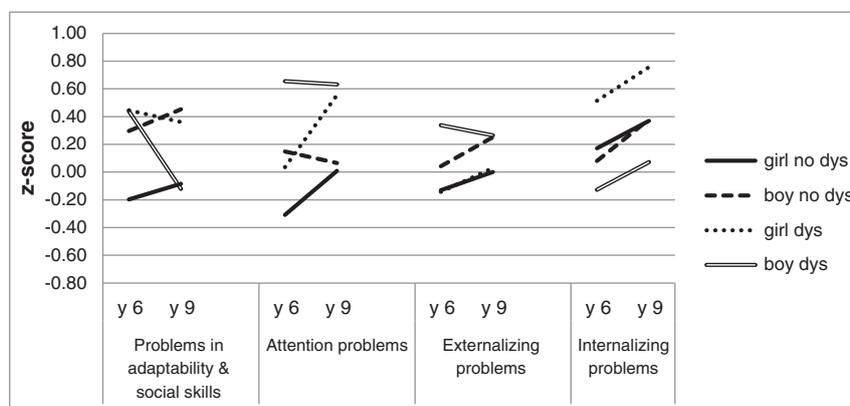


Figure 1. Change in psychosocial functioning among boys and girls with and without dyslexia. A higher score indicates more problematic behaviour in all scales. 'girl no dys' refers to girls without diagnosis of dyslexia, 'boy no dys' refers to boys without diagnosis of dyslexia, 'girl dys' refers to girls with diagnosis of dyslexia, 'boy dys' refers to boys with diagnosis of dyslexia.

factors: adaptability/social skills, inattention and externalizing and internalizing behaviours.

The mixed method ANOVA for adaptability and social skills showed a significant time and dyslexia status interaction ($F(1, 166) = 7.94, p < 0.01, \eta_p^2 = 0.046$). A paired sample t -test indicated that a change in adaptability and social skills (towards fewer problems) between ages 6 and 9 was significant only among

children with dyslexia ($t(38) = 2.06, p < 0.05$). Children with dyslexia improved more in adaptability and social skills than did children without dyslexia between the two time points. In addition, gender and dyslexia diagnosis interacted significantly ($F(1, 166) = 5.14, p < 0.05, \eta_p^2 = 0.030$). The follow-up analyses using one-way ANOVAs with Bonferroni correction post-hoc comparisons of four groups—consisting of typically reading boys (B_TR, $n = 66$), typically reading girls (G_TR, $n = 65$), boys with dyslexia (B_D, $n = 19$) and girls with dyslexia (G_D, $n = 20$)—revealed that typically reading girls had better scores in adaptability and social skills than typically reading boys at both age 6 (G_TR, $m = 48.37$ vs. B_TR, $m = 45.02, p_{\text{corr}} < 0.05$) and age 9 (G_TR, $m = 43.46$ vs. B_TR, $m = 39.41, p_{\text{corr}} < 0.05$). In addition, the difference in adaptability and social skills between typically reading girls and girls with dyslexia at age 6 was close to significant (G_D, $m = 39.15, p_{\text{corr}} < 0.07$). Finally, the difference between typically reading boys and boys with dyslexia at age 9 approached significance (B_TR, $m = 39.41$ vs. B_D, $m = 43.74, p_{\text{corr}} < 0.09$).

The mixed method ANOVA for inattention showed a significant main effect for dyslexia status ($F(1, 166) = 8.24, p < 0.01, \eta_p^2 = 0.047$), indicating more inattention among children with dyslexia as compared to typical readers. The main effect for gender was not significant. A significant main effect also was present for time ($F(1, 166) = 3.96, p < 0.05, \eta_p^2 = 0.023$), suggesting an increase in inattention when moving from preschool age (6 years old) to early school age (9 years old). However, the significant time and gender interaction ($F(1, 3.34) = 6.59, p < 0.05, \eta_p^2 = 0.038$) suggested different changes over time for girls and boys. Further analyses with paired t -tests showed that inattention increased among girls ($t(84) = 3.43, p < 0.001$) during the transition into school, whereas, among boys, inattention stayed at a high level both at preschool and school ages (Figure 1). Neither the interaction of gender and dyslexia status nor the interaction of time, gender and dyslexia status was significant.

In the mixed method ANOVA for externalizing behaviour, neither the main effects for time, gender and dyslexia status nor any of the interactions were significant. In the mixed method ANOVA for internalizing behaviour, a significant main effect emerged for time ($F(1, 166) = 6.24, p < 0.05, \eta_p^2 = 0.036$), indicating an increase of internalizing behaviour after entering school. The gender and dyslexia status and the time, gender and dyslexia status interactions were not significant.

DISCUSSION

The present study examined the associations between dyslexia and psychosocial functioning during the transition into school. Previous studies on the links between learning difficulties and psychosocial functioning have focused on school-age children. The present study contributes to the literature by utilizing a longitudinal design with assessments from the years prior to school entry (ages 4 and 6) to school age (9 years old). Investigation of psychosocial functioning during the transition into school is informative, as psychosocial problems identified already prior to school entry among children later diagnosed with dyslexia would suggest that these problems are not secondary consequences of difficulties in school. On

the other hand, an increase in psychosocial functioning problems after school entry selectively appearing among children with dyslexia would suggest that psychological functioning problems are related to difficulties in learning to read at school.

The analyses of parental reports in the four domains of children's psychosocial functioning (adaptability/social skills, inattention and externalizing and internalizing behaviours) indicated that in comparison to children with typical reading development, children with dyslexia had difficulties in two domains: (1) adaptability and social skills and (2) inattention prior to school entry (at ages 4 and 6). Our findings of differences between children with and without dyslexia prior to school entry suggest that poorer development of adaptability and social skills and higher levels of inattention tend to appear early on, rather than evolving as secondary reactions to difficulties experienced at the beginning of reading acquisition at school. However, the links between dyslexia and adaptability and social skills, as well as inattention, were different for boys and girls, as discussed below in more detail. FR for dyslexia was not associated with the psychosocial functioning domains beyond its effect on the dyslexia status of children, thus supporting Snowling *et al.*'s (2007) findings that psychosocial problems are associated with documented dyslexia rather than familial risk for it.

Our findings indicate that adaptability and social skills were lower in children with dyslexia than in children without dyslexia prior to school entry, but not at school age (9 years old). This is in line with previous studies that report no school-age differences in social skills between children with and without reading difficulties (Kempe *et al.*, 2011; Morgan *et al.*, 2008; Snowling *et al.*, 2007; Sorensen *et al.*, 2003). The finding in this sample that, in particular, boys with dyslexia showed a positive change in adaptability and social skills between ages 6 and 9 was surprising and has not been reported in previous studies. Prior to school entry, both boys and girls with dyslexia –as well as typically reading boys– had significantly poorer scores in adaptability and social skills than typically reading girls, but only boys with dyslexia showed a significant positive change in adaptability and social skills. For boys with dyslexia, adaptability and social skills appeared as a domain of strength, perhaps through compensatory mechanisms of orienting more towards peer groups than academic achievement. At least by age 9, boys' social skills were not negatively affected by difficulties in reading development.

The findings showed strong associations between inattention and dyslexia, which is in accordance with previous studies (e.g. Arnold *et al.*, 2005; Kempe *et al.*, 2011; Morgan *et al.*, 2008; Snowling *et al.*, 2007; Willcutt & Pennington, 2000b). A probable link between inattention and dyslexia is common underlying factors (i.e. aetiology) (Carroll *et al.*, 2004; Kempe *et al.*, 2011; Light, Pennington, Gilger, & DeFries, 1995; Willcutt *et al.*, 2007; Trzesniewski *et al.*, 2006) that affect the development of both language and attention. Common genes may have an impact, for example, on problems in response inhibition and verbal working memory (Willcutt *et al.*, 2007), as well as on language development and auditory processing (Willcutt & Pennington, 2000a). Our findings, however, indicated gender-specific associations: of all four groups, boys with dyslexia were highest in inattention, both prior to and after school entry, whereas girls with dyslexia showed an increase in inattention from ages 6 to 9. Girls with dyslexia were at the level of typically reading boys prior to school entry and at the level of boys with dyslexia at age 9. An increase in inattention was also found among typically reading girls, although at a

lower level. Our findings thus suggest that inattention is not a secondary reaction to dyslexia but rather a co-occurring problem. Furthermore, it appears that for girls, irrespective of their reading level, the transition into school increases problems in attention. One potential explanation for the gender difference is that, among girls, success in school may be more highly valued, and the demands of school and social comparison processes (Harter, 1998) contribute to an increase in inattention in girls.

The finding of no associations between dyslexia and internalizing and externalizing problems is in line with Kempe *et al.*'s (2011) results, but many other studies have found a link between dyslexia and internalizing problems (Carroll *et al.*, 2004; Halonen *et al.*, 2006; Morgan *et al.*, 2012; Morgan *et al.*, 2008; Snowling *et al.*, 2007; Terras *et al.*, 2009; Trzesniewski *et al.*, 2006; Undheim *et al.*, 2011; Willcutt & Pennington, 2000b) and between externalizing problems and dyslexia (Halonen *et al.*, 2006; McNulty, 2003; Morgan *et al.*, 2008; Trzesniewski *et al.*, 2006; Willcutt & Pennington, 2000b). Our study also found no gender differences in internalizing or externalizing behaviours (see similar findings in Arnold *et al.*, 2005; Undheim & Sund, 2008). One reason for the lack of a significant link between dyslexia and internalizing and externalizing problems in the present study (as well as in Kempe *et al.*'s study) may be the children's young age. In this study, they were younger than in many previous studies (Snowling *et al.*, 2007; Terras *et al.*, 2009; Undheim *et al.*, 2011; Willcutt & Pennington, 2000b). The potential secondary effects of low achievement in reading may become evident as an increase in problem behaviours by middle school. It is possible that some of these children will have psychosocial functioning problems in the externalizing and internalizing domains in later grades. This is when the demands for both social skills in the classroom and academic learning increase, and identification as learning-disabled and ensuing self-evaluative processes have had more time to have an effect.

In addition to the children's young age in this study, the transparent orthography of Finnish and the late entry into school in Finland could possibly also affect the lack or nature of psychosocial functioning problems among children with dyslexia. One can surmise that children who learn to read in a transparent orthography such as Finnish and enter school at age 7 confront a quite different challenge than children who start learning to read in a deep orthography such as English at age 5. Because learning the mapping of phonemes and graphemes is a relatively easy task in Finnish, acquisition of basic decoding skill may be a less stressful experience for children. In terms of cumulative risk factors (e.g. Pennington, 2006; van Bergen, van der Leij, & de Jong, 2014b), it may still be easier to learn to read Finnish –even if children have multiple risk factors (including psychosocial) – than English. The set of underlying risk factors may differ somewhat for different orthographies, which points out a need for further studies to explore these issues. Notably, similar to previous studies in other orthographies, we found that inattention levels were high in children with later-diagnosed dyslexia.

A few limitations need to be considered. First, we used only parental evaluations of children's psychosocial functioning. Adults in the home environment were, however, the only source of skills evaluation available across the study's long time span (ages 4–9) and included in the follow-up study. Moreover, studies have found that teachers typically report fewer and less severe problems than parents (e.g. Dahle *et al.*, 2011), and it is likely that parental reports are better at capturing the 'inner feelings' of young children than teachers' reports (e.g. Morgan *et al.*,

2012). Second, we chose to leave out assessments of experiences of potential teaching situations at home. Some parents may have taught their children to read and, when their children had learning difficulties, may have found the situation unpleasant and increased their negative evaluations of problem behaviours. However, our data for age 4.5 on the frequency of teaching of phonemes, letter names and a blending of letters and phonemes failed to support this suggestion. No differences were found between children with or without dyslexia in parental teaching measures, and teaching measures did not relate to any of the psychosocial functioning variables. Overall, parental teaching was uncommon: more than 60 percent of all parents 'never' taught their 4-year-old children letters or 'only randomly', and 85 percent of parents reported 'never' or 'randomly' teaching phonemes or blending. The third limitation of the present study is the rather small sample size (39 children with dyslexia). On the other hand, dyslexia diagnoses were based on several individually assessed measures, and the follow-up was longer than in previous studies, which are strengths of the sample. Fourth, our sample has more FR children than in the general population, which may impact the findings. Using a multiple deficit/cumulative risk factor model (e.g. Pennington, 2006; van Bergen *et al.*, 2014a, 2014b), we could hypothesize that FR children without dyslexia have several underlying risk factors that may also include psychosocial functioning. This study failed to find, however, any effects of FR status on psychosocial functioning, other than dyslexia status.

Fifth, notably, despite the longitudinal design, this study is not able to prove the direction of causality. The findings, however, showed that children later diagnosed as dyslexic had more problems in psychosocial functioning than typical readers well before the transition into school. This suggests that, in respect to social skills and inattention, the link already exists 3 years prior to when teaching or reading begins or experiences of being good or poor at school tasks occur.

Overall, the findings indicate that problems of inattention and adaptability/social skills emerge early on, prior to school age, among children later diagnosed with reading disability. Inattention and adaptability/social skills are thus possible early risk factors for dyslexia. Nonetheless, the size of the effects was moderate and not all children in grade 2 had difficulties with attention or adaptability and social skills. Our findings suggest that early school years education in Finland is working in a way that children with difficulties in literacy skills do not seem to show secondary psychosocial difficulties due to their problems in reading. Notably, because of the transparency of learning to decode Finnish, the differences between children in grade 1 in the fall are already quite large (some children are reading Harry Potter books and some just starting to master letters). Because of the large variation in reading skills, teachers typically adopt various individualized teaching methods. More research is needed on how the specific supportive characteristics of schools or teachers may possibly be a buffer against the effects of reading difficulties on psychosocial functioning. Future studies would also be important on the mechanisms behind orthography's potential effects on the links between reading difficulties and psychosocial functioning.

Our findings indicated that the transition into school appears to have a different impact on inattention and adaptation/social skills for girls as compared to boys. This may be linked to different parental normative goals set for girls' adaptation. Possibly, girls also react to the pressures and demands of the new

context so that, later, they may internalize problems, a behaviour typically more common among girls (Kempe et al., 2011; Trzesniewski et al., 2006; Willcutt & Pennington, 2000b). Further studies, however, are needed to understand the mechanisms behind gender differences in the links between dyslexia and psychosocial functioning, for instance, whether gender difference varies according to social activities selected for or by the children. In addition, future research needs to examine the links between dyslexia and psychosocial functioning after age nine, to investigate the potential for later secondary effects of low achievement in reading.

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II

PROFILES OF SCHOOL MOTIVATION AND EMOTIONAL WELL-BEING AMONG ADOLESCENTS: ASSOCIATIONS WITH MATH AND READING PERFORMANCE

by

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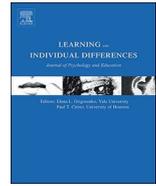
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Profiles of school motivation and emotional well-being among adolescents: Associations with math and reading performance

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ABSTRACT

This study examines profiles of school motivation and emotional well-being and their links to academic skills (reading and math) among adolescents ($N = 1629$) at the end of comprehensive school (age 15–16). Using a person-centered approach (latent profile analysis), five distinct profile groups were identified. Three of the identified groups had a flat profile in motivation and well-being but at different levels. The first group manifested high motivation and well-being ($n = 178$, 11%); the second group was average in both ($n = 1107$, 68%); and the third had low motivation and well-being ($n = 121$, 7%). Two groups had mixed profiles; one group manifested only low motivation ($n = 140$, 9%) and the other only low well-being ($n = 83$, 5%). A comparison of the profile groups in terms of academic skills indicated that low school motivation was linked to poor math and reading performance, whereas low emotional well-being was linked to poor math and reading performance only when accompanied by low school motivation. The association between poor math skills and low motivation suggests that, when planning support for students, those with math problems or comorbid math and reading problems are especially at risk for low motivation and need support in both academic skills and motivation.

1. Introduction

Many adolescents struggle with the key academic skills of math or reading (Dirks, Spyer, van Lieshout, & de Sonneville, 2008). Developmental difficulties in cognitive functions typically underlie poor performance in academic learning. However, low school motivation, such as low task-focused behavior (Klauda & Guthrie, 2015) and low emotional well-being, such as low self-esteem (Nathan & Rucklidge, 2011), are also associated with poor academic performance. Previous studies on the links between difficulties with math and reading and school motivation and emotional well-being are limited. Furthermore, those studies typically focus on only a few aspects of those dimensions and on whole-sample averages and correlations, instead of using person-oriented approaches that allow for analysis of heterogeneous profiles in the sample. Profiling studies are pertinent because the links between math and reading difficulties, school motivation, and emotional well-being are likely to vary among individuals (Korhonen, Linnanmäki, & Aunio, 2014; Roeser, Eccles, & Sameroff, 1998). Profiling of several aspects simultaneously provides a more comprehensive understanding of the mechanisms for the accumulation of risks, identifies adolescents at the highest risk, and thus aids in building support systems. The

present study includes a broad array of measures, ranging from academic skills (math, reading fluency, and reading comprehension), to school motivation (math motivation, literacy motivation, task-focused behavior, and school enjoyment) and emotional well-being (school burnout, self-esteem, and internalizing and externalizing behavior problems). In addition, it examines a large sample of adolescents at the end of comprehensive school, just before they transition to post-comprehensive secondary education.

1.1. Students' school motivation and academic performance

Theories of motivation and related empirical research indicate that motivation plays an important role in students' learning and academic achievement in school (Eccles & Wigfield, 2002; Pintrich, 2003; Wigfield & Cambria, 2010). One approach to studying students' motivation in a particular learning situation focuses on strategies that students employ; that is, how one interprets the situation based on one's past experiences (Norem & Cantor, 1986; Nurmi, 1993; Wigfield et al., 2015), and what kind of response style one chooses, such as whether one approaches or avoids the learning task (Dweck, Chiu, & Hong, 1995; Onatsu-Arvilommi & Nurmi, 2000). The evidence indicates that

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task-focused behavior is related to better learning outcomes than task-avoidance (e.g., deep rather than surface processing; Elliot, McGregor, & Gable, 1999). According to the expectancy-value theory (Eccles, 2005; Eccles-Parsons et al., 1983; Wigfield & Cambria, 2010; Wigfield & Eccles, 1992, 2000), an individual's performance, persistence, and task choice in learning situations (i.e., achievement motivation) is influenced by his or her expectations and values. The theory proposes that a student is likely to engage in academic activities if the outcome is something he or she values as interesting (intrinsic enjoyment value), useful (utility value), and important (attainment value), and the effort the activity requires is suitable (relative cost). Motivation has also been associated with emotions (enjoyment) toward studying and school, where one's emotions impact the student's achievement at school via control and value cognitions (Hagenauer & Hascher, 2014; Pekrun, 1992, 2006, 2009). The link between motivation and achievement is assumed to form a reciprocal feedback system in which motivation increases enjoyment and academic achievement in the task domain (Goetz, Frenzel, Hall, & Pekrun, 2008), and high achievement in school, in turn, increases experiences of high task value and school enjoyment via the self-concept of ability (Hagenauer & Hascher, 2014).

Although poor academic skills and math and reading difficulties are acknowledged as constituting risks toward the development of school motivation (Jögi, Kikas, Lerkkanen, & Mägi, 2015; Klauda & Guthrie, 2015; Onatsu-Arivilommi & Nurmi, 2000), studies on school motivation among children and youth with low math or reading performance remain scarce. High motivation for school subjects and task-focused behavior have been suggested to predict achievement more strongly among competent reading children than among struggling readers, even when effort and persistence in a task are controlled for (Klauda & Guthrie, 2015). Poor academic skills have also been shown to affect behavioral strategies in learning situations by decreasing task-focused behavior during the first school years (Onatsu-Arivilommi & Nurmi, 2000). An important limitation of most previous studies is their narrow focus on only one motivational aspect at a time. In the present study, a more comprehensive approach is adopted by examining simultaneously students' behavioral strategies in learning situations (task-focused behavior), the value students attach to different school subjects (task values in math and in literacy), and students' emotions regarding school (school enjoyment).

1.2. Students' emotional well-being and academic performance

In addition to motivation, students' emotional well-being at school is important for their learning and academic achievement (Djambazova-Popordanoska, 2016). Instead of the overall meta-construct of well-being that covers diverse aspects of healthy and successful living (e.g., Renshaw, Long, & Cook, 2015), we focus on students' emotional well-being, conceptualized as an affective subjective experience and encompassing areas such as mood and self-esteem (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002). In the present study, adolescents' emotional well-being at school is conceptualized and assessed using the following four indicators: students self-reported school burnout, self-esteem, and externalizing and internalizing behavior problems.

School burnout is operationalized similarly to the construct of work-related burnout, but it is situated in the context of an individual's personal feelings about schoolwork. School burnout is seen to comprise the following three components (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009): exhaustion (i.e., strain and fatigue because of schoolwork); cynical attitude toward school (i.e., detached attitude concerning studying); and a sense of inadequacy (i.e., diminished feelings of competence in school and schoolwork). School burnout can also be generalized outside the school context through depression (Salmela-Aro et al., 2009; Salmela-Aro & Upadyaya, 2014). Exhaustion and a sense of inadequacy can be manifested by a low positive mood and perception of oneself, whereas a cynical attitude is directed toward school (Bask &

Salmela-Aro, 2013). School burnout has been shown to be associated with academic skills (Salmela-Aro, 2009).

Self-esteem refers to an individual's global sense of well-being (Zelevke, 2004) and reflects how much a person likes, accepts, and respects him- or herself overall as a person (Harter, 1990; Rosenberg, 1965). Self-esteem is central to maintaining both overall well-being and life satisfaction (Diener & Diener, 1995; Neto, 1993), and emotional well-being (Schutte et al., 2002). Self-esteem supports academic achievement by fostering belief in oneself as a learner (see Terras, Thompson, & Minnis, 2009), and low self-esteem has been correlated with low academic skills (Nathan & Rucklidge, 2011).

Emotional well-being can be also conceptualized as the absence of externalizing and internalizing behavior problems. The former refers to conduct problems and aggressive and impulsive behavior, and the latter refers to withdrawal, depression, anxiety, and somatic problems (Achenbach & Edelbrock, 1978). According to the literature, both externalizing behavior (Adams, Snowling, Hennessy, & Kind, 1999; Gresham, Lane, MacMillan, & Bocian, 1999; Hinshaw, 1992), and internalizing behavior (Greenham, 1999; Willcutt & Pennington, 2000) are consistently documented to be correlated with low academic skills. Previous studies have shown that the level of internalizing and externalizing behavior is higher among students with reading or math difficulties in comparison to typical learning peers (e.g., Arnold et al., 2005; Nathan & Rucklidge, 2011; Undheim, Wichström, & Sund, 2011). The findings of the complex interrelationships between motivation, well-being, and academic skills provide an impetus for investigating motivation and well-being profiles separately for low math and low reading performance.

1.3. Person-centered studies on the relationships between motivation, well-being, and academic performance

In person-centered approaches, the focus is on individual differences and similarities, or profiles, across critical measures. In these approaches, it is not assumed that the same associations between measures would apply to all individuals (as when using variable-oriented methods). Via identification of similarities across individuals (latent subgroups) in the measures of interest, we can reveal differential associations between measures that would be muddled in approaches relying on across-sample means and correlations.

Only a few studies have applied person-oriented approaches to investigate motivation, well-being, and achievement among adolescents. Roeser et al. (1998) and Roeser, Eccles, and Freedman-Doan (1999) studied patterns of adaptation among early adolescents ($N = 1041$; $N = 491$) based on school motivation (self-perception of academic competence and academic values) and emotional functioning (depression and anger), and then linked the patterns to academic outcomes. Their analyses identified four subgroups: two groups with either positive or negative school motivation and emotional functioning; and two groups with a mismatch in levels of school motivation and emotional functioning. These findings suggested that some adolescents have low school motivation without emotional distress or academic problems, and another small subgroup may only have problems with emotional functioning. Importantly, the authors found that an association between low school motivation, poor emotional functioning, and low academic achievement was documented only for the multiple risk group and not for all adolescents. The measure of academic achievement used by Roeser et al. (1998) was based on parental and self-reports of student academic achievement and grade point average (GPA) and not on tests of specific academic skills, such as reading and math. Furthermore, the authors did not analyze the effects of low academic performance in these subjects in their design.

In a study among high school students, Tuominen-Soini and Salmela-Aro (2014) identified four profiles based on students' schoolwork engagement and burnout: two groups with positive school engagement (one with high levels of burnout) and two groups of less

engaged students (also one with high levels of burnout). The analyses indicated that academic skills were lowest among the two subgroups of less engaged students. The limitation of the study was that academic skills were assessed using only the GPA. In addition, the sample was restricted to a specific educational track, upper-secondary schooling (i.e., senior high school; Tuominen-Soini & Salmela-Aro, 2014).

Unlike the above studies, Korhonen et al. (2014) identified subgroups at the end of Grade 9 (age 15–16) based on students' scores on mathematical and reading skills tests and self-reported academic well-being (school burnout, academic self-concept, and self-perceived learning difficulties). Of the four groups identified, two showed no problems, one group was characterized by low academic skills and low academic well-being, and one had low well-being despite average academic skills. The finding by Korhonen et al. (2014) indicating that academic skills and well-being are not always concordant is important. However, the narrow range of academic well-being measures, and especially the lack of measures on student motivation, leaves open the nature of associations within more comprehensive profiles of motivation, well-being, and achievement.

Overall, the literature indicates that a sizable proportion of adolescents report problems in school motivation and well-being (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014), and more importantly, adolescents seem to represent a highly heterogeneous group in terms of motivation and well-being profiles at the transition to upper secondary education. Thus, it is necessary to take this variability into account when seeking an understanding of the mechanisms that drive the associations between academic skills and learning performance and measures of motivation and well-being.

1.4. The present study

In the present study, we address the limitations of previous research by employing a more comprehensive set of measures of school motivation and emotional well-being in addition to standardized tests of core academic skills in a representative sample of adolescents before the transition to separate educational tracks. We also investigate the subsequently identified profile groups with respect to information on the students' difficulties in reading and/or math performance. In this paper, standardized tests are used with the cut-off score of the 25th percentile to measure low performance in math (LM), reading (LR), or both (LM + LR) (Mazzocco, 2008; Murphy, Mazzocco, Hanich, & Early, 2007). Finally, we examine gender differences. The previous profiling studies (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014) suggested that girls tend to have a higher likelihood of belonging to subgroups that attach high value to school but also exhibit more exhaustion and internalizing behavior, whereas boys have been overrepresented in groups that show detachment from school.

We will utilize a person-oriented approach to identify profile groups of school motivation and emotional well-being. We examine their association with adolescents' reading and math skills as well as if the profile groups differ in their prevalence of low performance in math, reading, or both (LM, LR, or LM + LR). Our first hypothesis is that we will identify distinct profile groups where both school motivation and emotional well-being are at same level (high or low) and some mixed profiles, as found in previous profiling studies (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). Our second hypothesis is that there are differences between the identified profile groups in terms of academic skills (Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014). We expect that adolescents with low levels of school motivation and emotional well-being also have poorer skills in reading and math. We further expect that adolescents with comorbid difficulties in both reading and math will have particularly poor motivation and emotional well-being because they have poor skills in two central academic domains, making their struggle in

school more widespread. Our third hypothesis is that there are gender differences in the profile groups with girls having more internalizing behavior, whereas boys have lower levels of school motivation (Korhonen et al., 2014; Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014).

2. Method

2.1. Participants

The participants comprised 1629 Finnish-speaking ninth graders (age 15–16) in 95 classrooms, 52% of whom were boys. Participants were recruited as part of the Jyväskylä Longitudinal Study of Dyslexia (JLD) that has followed about 200 children since birth (Lyytinen, Erskine, Hämäläinen, Torppa, & Ronimus, 2015). The participants in this study are the JLD follow-up children and their classmates. The data of the present study was collected at a critical developmental transition point when adolescents complete their nine-year compulsory education (after the three-year lower secondary school). At this point, students choose to either continue their studies in upper secondary school or vocational school or enter the workforce. The data was collected in classroom situations from schools located in central Finland in urban and suburban areas. All classrooms were typical Finnish lower secondary school classrooms that organize teaching according to the national curriculum and use Finnish as the language of instruction. Parents had given their written consent for their child's participation in the study.

2.2. Measures

2.2.1. School motivation

Student self-report scales were used to assess four different aspects of school motivation: math motivation, literacy motivation, task-focused behavior, and school enjoyment. Measures of math motivation and literacy motivation (i.e., motivation for native language and literature) were constructed by calculating mean scores of items assessing different types of task value. Task value was assessed by asking students 12 questions regarding math and literacy (Eccles-Parsons et al., 1983). The students were asked to rate (1) how interesting, (2) how important, and (3) how useful they thought math and literacy were as school subjects using a 5-point scale (1 = *not at all*, 5 = *very much*). Two items asked about the three dimensions of task value (interest, importance, and utility) separately for math and literacy. Cronbach's alpha reliability coefficients were 0.90 for math (six items) and 0.88 for literacy (six items).

To assess students' task-focused behavior, we used a shortened version of the original 20-item Achievement Beliefs Scale for Children (ABS-C; Aunola & Nurmi, 2006). The present analysis utilized seven item statements that assessed students' typical task-focused behavior in academic situations when facing a difficult task (e.g., *reversed, I also like difficult school tasks*). A composite score was created by computing the mean of these seven items by first reversing the scaling of the five negatively worded items (e.g., *I give up if the task in school feels difficult*). Cronbach's alpha reliability coefficient for the scale was 0.81.

For assessing school enjoyment, we used four items from the ABS-C (Aunola & Nurmi, 2006) that examine students' typical attitudes and feelings toward school and schoolwork (e.g., *It is nice to come to school*). A composite score was created by computing the mean of the four items (one negatively worded item was reversed). Cronbach's alpha reliability coefficient for the scale was 0.75.

2.2.2. Low emotional well-being

Low emotional well-being was assessed with four measures capturing school burnout, low self-esteem, externalizing behavior problems, and internalizing behavior problems. School burnout was assessed by using the School Burnout Inventory (SBI; Salmela-Aro &

Näätänen, 2005; for validity and reliability, see Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008). The SBI consists of 10 items and three subscales: exhaustion at school (four items; e.g., *I feel overwhelmed by my schoolwork*); cynicism toward the meaning of school (three items; e.g., *I feel that I am losing interest in my schoolwork*); and a sense of inadequacy as a student (three items; e.g., *I often have feelings of inadequacy in my schoolwork*). Participants in the study rated the items using a 5-point scale (1 = *totally agree*, 5 = *totally disagree*). However, to calculate the composite score, the answers were converted to represent the original 6-point scale of the test manual. Subscale means were calculated for exhaustion, cynicism, and inadequacy according to the manual, and a total burnout score was calculated by averaging the three subscale scores. Cronbach's alpha reliability for the total burnout score was 0.74.

Low self-esteem was assessed using a five-item shortened version of the Rosenberg (1965) Self-Esteem scale, which captures the aspects of self-respect, general acceptance of self, and overall conception of the self (e.g., *I believe I have many good qualities*). Ratings were given on a 5-point scale (1 = *not true*, 5 = *very much true*). A composite score of low self-esteem was created by computing a mean of the five items (three positively worded items were reversed). Cronbach's alpha reliability for self-esteem issues was 0.80.

Students' externalizing and internalizing behavior problems were assessed using items that the students self-rated. Externalizing behavior was assessed with four items that reflect aggressive behavior and conduct problems: *Other children annoy me*, *I often get mad and lose my temper*, *I fight or argue a lot*, and *I get irritated easily*. Internalizing behavior was assessed with five items reflecting anxiety and depression: *I am worried about many things*, *I often feel like crying*, *I get tired easily*, *I often have a stomachache or headache*, and *I am often unhappy or down*. Cronbach's alphas were 0.83 and 0.81 for externalizing behavior problems and internalizing behavior problems, respectively.

2.2.3. Academic skills in reading and math

Reading fluency was assessed with the following three group-administered tasks: sentence reading, error search, and word chains task. Students were instructed to do all tasks as accurately and as quickly as possible. In the sentence reading task, the participants were asked to read and verify the truthfulness (true or false) of as many sentences as possible within 2 min (Mayringer & Wimmer, 2003). The sentences were short and easy and required a minimal amount of comprehension or specialized knowledge (e.g., *A ball is round; Blueberries are yellow*). In the error search task, the students were asked to silently read words written on a sheet of paper and mark as many incorrectly spelled words (either a wrong letter, extra letter, or missing letter) as possible in 3 min (Holopainen, Kairaluoma, Nevala, Ahonen, & Aro, 2004). In the word chains task, the students were presented with chains of words written together without spaces between consecutive words. The students were asked to identify and mark on the sheet as many word boundaries as possible in 90 s (Holopainen et al., 2004). Each of the three measures represented a sum score calculated by subtracting the number of incorrect answers from the number of correct answers or correctly identified words in the word chains task. The measure for reading fluency was the mean of the standardized scores of the three group-administered tasks. Cronbach's alpha reliability coefficient for the reading fluency composite score was 0.78.

Reading comprehension was assessed using the Program for International Student Assessment (PISA) reading items for Grade 9 students' reading achievement. The items have been used repeatedly in each cycle of the PISA reading assessments to ensure the comparability of the measurement (Organisation for Economic Cooperation and Development [OECD], 2010, p. 26; 2013, p. 45). The booklet presented to the students included eight texts or other materials, such as tables, graphs, and figures, and 15 multiple-choice questions and 16 open-ended questions. Of the questions, 12 required students to access and retrieve information, 12 to integrate and interpret information, and 7 to

reflect and evaluate information. After the instructions were given, the students had 60 min to complete the task. The sum score for reading comprehension was calculated by summing the item scores derived by using the detailed PISA scoring instructions. Cronbach's alpha reliability coefficient for the total score was 0.80.

Mathematical skills were assessed using the standardized arithmetic test for grade level (Räsänen & Leino, 2005). The scale is intended for Grades 7 through 9 (13–16 years). The test contains 40 items, producing a maximum of 40 points. This scale assesses students' performance in basic arithmetic tasks (addition, subtraction, multiplication, and division), as well as in word problem solving, algebra, geometry, and unit conversion skills. This screening test is used in Finland to identify students at risk for mathematics difficulties. Cronbach's alpha reliability coefficient for the sum score was 0.90.

2.2.4. Low math and reading performance

Math performance was assessed using math assessments and reading performance was assessed using reading comprehension (PISA) assessments. The 25th percentile was used as a cut-off score for identifying students with low math performance, low reading performance, or both. We chose to use this cut-off score since it is commonly used to distinguish students with and without learning difficulties and thus facilitates comparisons to other studies (e.g. Mazzocco, 2008; Murphy et al., 2007).

2.3. Procedure

Assessments were carried out in the students' classrooms during the school day by trained testers (university researchers or final-phase psychology graduate students) between January and April 2010 in Grade 9. The data consisted of academic test scores and student self-reports using questionnaires for school motivation and emotional well-being. All the data was collected from the students in each classroom on the same day they were assessed. The research was conducted following the Declaration of Helsinki and the project has received ethical consent from the ethical board of the University of Jyväskylä.

2.4. Data analyses

Latent profile analysis (LPA) was used to identify subgroups with similar well-being (four measures) and motivation (four measures) profiles. The identified subgroups were compared in terms of their reading and math performance status as well as continuous reading and math skill variables. LPA is a model-based variant of the traditional cluster analysis (Vermunt & Magidson, 2002) where the goal is to identify the smallest number of latent groups based on associations among the observed continuous variables. The number of latent groups was decided using the Bayesian information criterion (BIC), Akaike information criterion (AIC), Vuong-Lo-Mendell-Rubin (VLMR) test, and adjusted Lo-Mendell-Rubin (LMR) likelihood ratio tests as well as theoretical consideration. Also considered were the classification quality, the entropy value, and the usefulness and interpretability of the latent classes. Next, one-way analyses of variance (ANOVAs) were conducted to validate the emergent profiles by comparing them in terms of the criterion variables. Mplus 6.1 was used to conduct LPA (Muthén & Muthén, 1998–2010). Multivariate analyses of variance (MANOVAs), ANOVAs, and cross-tabulations were run in PASW 18.

3. Results

3.1. Descriptive statistics

Descriptive statistics for school motivation, emotional well-being, and academic skills are presented in Table 1. All variables were approximately normally distributed. Some statistically significant gender differences were detected in the school motivation measures. Girls'

Table 1
Descriptive statistics.

	N	All M (SD)	Min	Max	Skewness (SE)	Kurtosis (SE)	N	Boys M (SD)	N	Girls M (SD)
Math motivation	1629	3.17 (0.88)	1	5	−0.13 (0.06)	−0.52 (0.12)	783	3.19 (0.88)	846	3.14 (0.88)
Literacy motivation	1629	3.21 (0.81)	1	5	−0.13 (0.06)	−0.21 (0.12)	783	2.92 (0.74)	846	3.48 (0.78)
Task-focused behavior	1628	2.90 (0.72)	1	5	−0.04 (0.06)	−0.09 (0.12)	782	2.92 (0.71)	846	2.89 (0.72)
School enjoyment	1628	3.04 (0.82)	1	5	−0.30 (0.06)	−0.28 (0.12)	782	2.87 (0.82)	846	3.19 (0.80)
School burnout	1607	29.95 (9.69)	9	60	0.42 (0.06)	0.10 (0.12)	767	29.58 (9.54)	840	30.28 (9.82)
Low self-esteem	1614	2.59 (0.76)	1	5	0.08 (0.06)	−0.06 (0.12)	774	2.37 (0.71)	840	2.80 (0.76)
Externalizing behavior	1603	2.31 (0.85)	1	5	0.45 (0.06)	−0.05 (0.12)	765	2.18 (0.82)	838	2.43 (0.86)
Internalizing behavior	1604	2.41 (0.87)	1	5	0.46 (0.06)	−0.25 (0.12)	765	2.05 (0.74)	839	2.73 (0.86)
Math	1435	23.31 (7.08)	0	45	−0.24 (0.06)	−0.19 (0.13)	693	24.41 (7.23)	742	22.23 (6.78)
Reading fluency	1608	0.01 (0.87)	−4.58	2.66	−0.18 (0.06)	0.46 (0.12)	771	−0.27 (0.86)	837	0.26 (0.80)
Reading comprehension	1040	22.98 (6.11)	2.33	33.73	−0.74 (0.08)	0.09 (0.15)	500	21.67 (6.53)	540	24.20 (5.42)

motivation for literacy was higher than that of boys ($t(1627) = 15.01$, $p < 0.001$), and on average, girls enjoyed school more than boys ($t(1627) = 7.99$, $p < 0.001$). However, girls were found to have lower self-esteem ($t(1627) = 11.82$, $p < 0.001$), and they reported more externalizing behavior ($t(1627) = 5.81$, $p < 0.001$) and more internalizing behavior ($t(1627) = 17.08$, $p < 0.001$) than boys.

3.2. Latent profile analysis (LPA)

To identify profile groups for school motivation and well-being, LPA was conducted. A solution with seven groups was selected based on the indices provided by Mplus (see Table 2). The seven-group solution represented a good fit with the data. The AIC and BIC values suggested that a solution with even more groups could be applicable (the values continued to decrease even for eight groups). However, based on the VLMR and LMR tests, the seven-group solution was most preferable. On closer examination, it was found that three of the seven groups were very close to the average level in all motivation and well-being measures (less than half a standard deviation from the overall average for all). Thus, for subsequent analyses, we decided to merge these three average groups for a final subgroup solution of five groups.

The following three of the five profile groups showed a concordant pattern across the measures (Fig. 1): a group with high motivation and high well-being (HM/HW; $n = 178$, 52% girls); a group with an average profile (i.e., average motivation and average well-being; AM/AW; $n = 1107$, 52% girls); and a group with low motivation and low well-being (LM/LW; $n = 121$, 67% girls). Two profile groups showed mixed motivation and well-being: one group had low motivation and average well-being (i.e., low motivation; LM; $n = 140$, 17% girls), and the other group had average motivation despite low well-being (i.e., low well-being; LW; $n = 83$, 87% girls). The groups were found to be distinct (see Table 3) with respect to the measures of school motivation and emotional well-being included in the LPA, which validates the existence of the groups.

Gender was found to be unevenly distributed in the profile groups ($\chi^2(4, 1629) = 119.11$, $p < 0.000$). The observed proportion of boys was statistically higher than expected (adjusted standardized residual = 8.62) in the LM group, and the observed proportion of girls was higher than expected (adjusted standardized residual = 3.43) in the LM/LW group and in the LW group (adjusted standardized residual = 6.52).

3.3. Differences in academic skills between profile groups

The second aim of the study was to compare the identified profile groups in math, reading fluency, and reading comprehension. One-way ANOVAs revealed statistically significant differences between the profile groups in math ($F(4, 22.07) = 23.45$, $p < 0.00$), reading fluency ($F(4, 6.50) = 8.79$, $p < 0.00$), and reading comprehension ($F(4, 19.76) = 21.51$, $p < 0.00$; see Table 4). The two profile groups with low school motivation (LM and LM/LW) had lower scores in math and

reading comprehension than the other profile groups. Students in the LM group also had lower scores in reading fluency than the other profile groups. However, students who had at least average school motivation (HM/HW, AM/AW, and LW) scored higher on all academic skills tests than the profile groups with low school motivation. The subgroup with no problems in school motivation or emotional well-being (HM/HW) scored the highest on the math skills and reading comprehension tests; however, the subgroup with average school motivation and low emotional well-being (LW) scored highest on the reading fluency subtest.

3.4. Profile groups and math and reading performance

Finally, profile group differences were examined with respect to the proportion of adolescents with low performance in math, reading, or both. Cross-tabulation of the low performance status and the profile group (see Table 5) indicated that students with low performance in math were more likely than expected to belong to the LM/LW subgroup (adjusted standardized residual = 5.55). Low performance in reading and co-morbid low performance in math and reading were only associated with low school motivation; students with low performance in math and reading were more likely than expected to belong to the LM subgroup (adjusted standardized residual = 4.20). Finally, the students with no difficulties in math or reading (based on the 25th percentile criterion) were more likely than expected to belong to the HM/HW subgroup (adjusted standardized residual = 3.19) and were more unlikely than expected to belong to the LM/LW subgroup (adjusted standardized residual = −5.97).

4. Discussion

The present study contributes to the literature by examining profiles of Grade 9 students' school motivation and emotional well-being using a person-oriented approach. This research also applied a more comprehensive measurement battery than previous studies. In addition, instead of using the GPA or school grades, the present study assessed students' math and reading skills at an important time point, the end of lower secondary school just before the transition to upper secondary education. The findings suggested that a substantial proportion (21%) of students had either low motivation or low emotional well-being or both. Of specific interest was the emergence of mixed groups, which implies that the level of motivation and well-being do not always go together. For example, some students with high motivation may experience school burnout, internalizing problems, externalizing problems, and low self-esteem. Furthermore, the findings indicated that math and reading performance could be low in any of the profile groups. However, students with low motivation were more likely to show low levels of math and reading or math performance.

In accordance with our first hypothesis, distinguishable profiles were identified. Three of the five profile groups had concordant motivation and emotional well-being levels, either high, average, or low. Students in the first profile group with high motivation and well-being

Table 2
Latent profile analysis.

Number of classes	Log L	BIC	AIC	Entropy	VLMR	LMR	n (class 1)	n (class 2)	n (class 3)	n (class 4)	n (class 5)	n (class 6)	n (class 7)	n (class 8)
1	-18,363.193	36,844.717	36,844.717	-	-	-	1629							
2	-17,337.888	34,860.670	34,725.777	0.75	0	0	727	902						
3	-16,998.461	34,248.377	34,064.923	0.75	0	0	738	386	505					
4	-16,630.636	33,579.289	33,347.273	0.77	0	0	510	501	407	211				
5	-16,526.182	33,436.942	33,156.364	0.75	0.07	0.07	252	189	421	244	523			
6	-16,409.810	33,270.758	32,941.619	0.75	0.04	0.04	178	477	263	199	407	105		
7	-16,293.777	33,105.255	32,727.555	0.77	0.02	0.02	140	121	287	413	178	407	83	
8	-16,232.853	33,049.967	32,623.705	0.78	0.32	0.33	162	159	48	404	79	419	80	278

(HM/HW; 11%) enjoyed school, were highly task-focused, showed motivation for math and literacy, and had no signs of low emotional well-being. The students with average motivation and well-being (AM/AW; 68%) constituted the largest subgroup. These students showed an average level of subject specific interest, liked to attend school, and had no signs of low emotional well-being. The third profile group manifested low motivation and well-being (LM/LW; 7%).

The final two groups had mixed profiles. The first mixed group showed low school motivation despite average well-being (LM; 9%). This group showed positive overall well-being except for heightened school burnout. These students, which consisted of mostly boys, reported low interest in math and literacy, low focus on school tasks, and low school enjoyment. The second mixed group, comprising mostly girls, showed low emotional well-being despite average school motivation (LW; 5%). This group had, in particular, a tendency to internalize problems but had no problems with school motivation, and their literacy motivation was particularly high. Our finding on mixed groups (LM and LW) concurs with previous suggestions that low school motivation does not always imply a broader pattern of poor well-being (see also Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014), as it is possible that these students take a keen interest in activities outside school rather than schoolwork (Roeser et al., 1998).

A potentially worrying profile is shown by the low school motivation and well-being subgroup, which constituted 10% of the sample. Similar subgroups have been identified in previous studies, although constituting somewhat higher proportions, ranging from 14% (Tuominen-Soini & Salmela-Aro, 2014, based on school engagement and burnout) to 18% (Korhonen et al., 2014, based on academic achievement and well-being) and up to 30% (Roeser et al., 1998, based on school motivation and emotional functioning). These students can be considered at risk for restricted educational and economic attainment (Roeser et al., 1998), school drop-out, and other negative consequences later in life (Korhonen et al., 2014; Roeser et al., 1998, 1999).

After identifying the profile groups, we analyzed their associations with academic skills (math and reading) using continuous as well as dichotomous measures. The dichotomous approach was motivated by the interest to see if students with single versus co-occurring low skills in math and reading had different profiles in motivation and emotional well-being. According to the second hypothesis, a comparison of the profile groups indicated differences in their math and reading performance. The two groups with low school motivation (LM & LM/LW) had lower math and reading scores than the other groups. Furthermore, in these profile groups, the frequency of poorly performing (lowest 25%) adolescents in math and reading was higher than expected. Interestingly, low motivation in particular was linked to low math and reading performance, whereas low emotional well-being did not show this association. Poor academic skills have also been shown to correlate with school burnout, especially cynicism (Salmela-Aro, 2009), low school value (Wigfield & Cambria, 2010), and low school attachment (Roeser et al., 1998, 1999). The causal mechanisms are likely to be reciprocal in that poor academic skills can be one reason for low school motivation, but poor motivation can also have an impact on skill development (Klauda & Guthrie, 2015).

As was expected particularly, the adolescents with low skills in both math and reading were overrepresented in the two groups with low motivation (LM and LM/LW). Thus, these two groups presented comorbid math and reading problems in addition to low motivation. This finding represents a risk for poor educational attainment and engagement and, consequently, marginalization from education and work. In learning disability literature, comorbid math and reading difficulties have been shown to have a more severe underlying deficit in comparison to a single difficulty (Moll, Silke, Göbel, & Snowling, 2015; Vukovic, 2012).

In line with previous studies (Korhonen et al., 2014; Roeser et al., 1998, 1999), more than half of the students (55%) in the low motivation and well-being subgroup (LM/LW) also displayed low performance

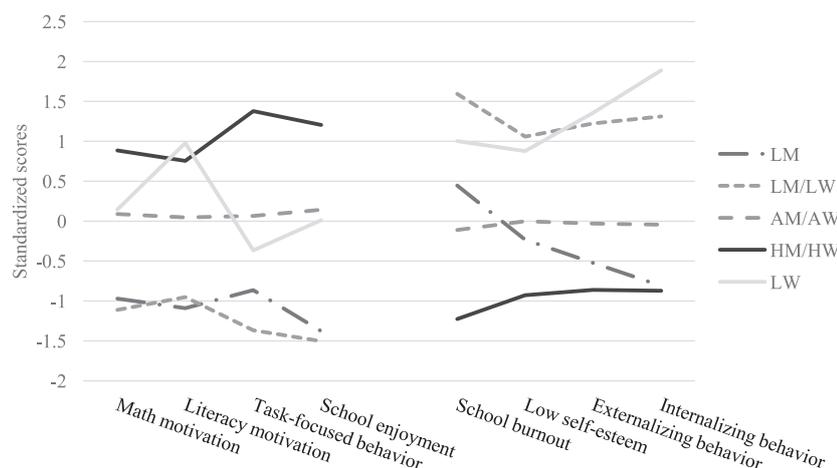


Fig. 1. Students' standardized mean scores on the school motivation and emotional well-being scales as a function of group membership.

Table 3
Profile groups' school motivation and emotional well-being measures.

Grade 9	HM/HW		AM/AW		LM/LW		LM		LW		ANOVA
	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	
Math motivation	178	3.95 ^c (0.66)	1107	3.25 ^b (0.77)	121	2.19 ^a (0.74)	140	2.31 ^a (0.71)	83	3.29 ^b (0.85)	F(4, 1624) = 146.54 ^{***}
Literacy motivation	178	3.83 ^d (0.63)	1107	3.25 ^c (0.70)	121	2.44 ^a (0.73)	140	2.33 ^a (0.65)	83	4.01 ^d (0.64)	F(4, 1624) = 114.93 ^{***}
Task-focused behavior	178	3.90 ^d (0.46)	1106	2.95 ^c (0.55)	121	1.92 ^b (0.54)	140	2.29 ^a (0.66)	83	2.64 ^c (0.53)	F(4, 1623) = 259.06 ^{***}
School enjoyment	178	4.03 ^c (0.48)	1106	3.16 ^b (0.61)	121	1.80 ^a (0.53)	140	1.91 ^a (0.53)	83	3.05 ^b (0.54)	F(4, 1623) = 413.52 ^{***}
School burnout	176	18.07 ^d (4.86)	1088	28.87 ^c (7.51)	120	45.38 ^b (7.89)	140	34.26 ^a (6.55)	83	39.66 ^c (9.11)	F(4, 1602) = 304.43 ^{***}
Low self-esteem	177	1.88 ^d (0.59)	1096	2.59 ^c (0.66)	120	3.40 ^b (0.74)	140	2.41 ^a (0.73)	81	3.26 ^b (0.80)	F(4, 1609) = 114.47 ^{***}
Externalizing behavior	176	1.58 ^c (0.55)	1085	2.28 ^a (0.73)	120	3.35 ^b (0.69)	140	1.87 ^a (0.66)	82	3.46 ^b (0.76)	F(4, 1598) = 181.85 ^{***}
Internalizing behavior	176	1.64 ^a (0.45)	1085	2.37 ^c (0.70)	120	3.55 ^b (0.67)	140	1.70 ^a (0.46)	83	4.06 ^d (0.50)	F(4, 1599) = 334.96 ^{***}

Note. The pairs with the same subscript letters do not significantly differ statistically ($p > 0.05$) based on the ANOVA post hoc (Bonferroni corrected) paired comparisons.
*** $p \leq 0.001$

Table 4
Profile groups' math and reading performance.

	HM/HW		AM/AW		LM/LW		LM		LW		ANOVA
	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	
Reading fluency	177	0.14 ^{bc} (0.84)	1095	0.01 ^{bc} (0.86)	116	0.01 ^b (0.85)	137	-0.34 ^a (0.87)	83	0.29 ^b (0.83)	F(4, 1608) = 8.79 ^{***}
Reading comprehension	138	25.42 ^{bc} (5.51)	863	23.16 ^b (6.01)	95	20.31 ^a (5.46)	108	19.66 ^a (6.42)	63	23.99 ^{bc} (5.87)	F(4, 1267) = 21.51 ^{***}
Math	164	25.59 ^c (6.55)	984	23.50 ^b (6.92)	97	19.39 ^a (6.43)	117	20.21 ^a (7.39)	73	23.51 ^b (6.56)	F(4, 1435) = 23.45 ^{***}

Note. The pairs with the same subscript letters do not significantly differ statistically ($p > 0.05$) based on the ANOVA post hoc (Bonferroni corrected) paired comparison.
*** $p \leq 0.001$

Table 5
Cross-tabulation of math and reading performance groups by profile subgroups.

	HM/HW n (%) Adjusted residuals	AM/AW n (%) Adjusted residuals	LM/LW n (%) Adjusted residuals	LM n (%) Adjusted residuals	LW n (%) Adjusted residuals	Total
Low math performance	7 (5.43%) -1.85	72 (9.34%) -1.15	22 (28.21%) 5.54	10 (10.87%) 0.28	2 (3.57%) -1.65	113 (10.04%)
Low reading performance	8 (6.20%) -1.14	67 (8.69%) -0.33	10 (12.82%) 1.27	13 (14.13%) 1.85	2 (3.57%) -1.43	100 (8.88%)
Low math and reading performance	4 (3.10%) -2.00	48 (6.23%) -2.32	11 (14.10%) 2.31	17 (18.48%) 4.20	4 (7.14%) -0.90	84 (7.46%)
No difficulties	110 (85.27%) 3.19	584 (75.75%) 2.38	35 (44.87%) -5.97	52 (56.52%) -3.88	48 (85.71%) 2.11	829 (73.62%)
Total	129 (100%)	771 (100%)	78 (100%)	92 (100%)	56 (100%)	1126

in math and reading comprehension. A novel finding of the present study is that while these students had a higher incidence of math problems and reading comprehension problems, their reading fluency was at the average level. This suggests a difficulty with comprehension rather than the typical dyslexia profile characterized by deficient fluency. The math and reading comprehension tests used in this study demanded a longer period of concentration than the speeded reading fluency task; thus, the ability to focus on the task was required more than for the fluency task performance. Also task-focused behavior was the lowest among students in this group. Not all struggling learners have an inherent risk for low performance, but they may experience a lack of high-quality instruction at school (Vukovic, 2012). However, an understanding of the causal mechanisms is also lacking. It has been suggested that learning and motivational difficulties develop reciprocally and accumulate over time (Roeser et al., 1999). Thus, resources should be allocated at the first sign of problems. In addition, the intervention efforts should take a comprehensive approach, including support for motivation, emotional well-being, and academic skills.

The mixed profile subgroup with low well-being but average motivation (LW) had no problems in math or reading. In fact, these students' reading fluency was the highest of all the subgroups, and the incidence of low performance in math and/or reading (below 25%) was very small. Although these students' school motivation and academic skills were at a high level, they reported high levels of burnout at school. Similarly to earlier studies (see also Roeser et al., 1998; Tuominen-Soini & Salmela-Aro, 2014), this finding suggests that for this subgroup of predominantly girls, high academic goals and a strong commitment to school may make them vulnerable to exhaustion and low well-being. However, because their academic achievement is high, these students' problems may go unnoticed at school, as also suggested in Roeser et al. (1999); therefore, screening of well-being at school is important.

The identification of groups with concordant profiles (corresponding levels of motivation and well-being) and groups with mixed profiles (low in one and high or average on the other domain) was in accordance with previous studies that examined adolescent profiles based on school motivation (academic competence beliefs and academic values) and emotional functioning (depression and anger; Roeser et al., 1998, 1999), school engagement (energy, dedication, and absorption) and burnout (Tuominen-Soini & Salmela-Aro, 2014), as well as academic performance (math, spelling, and reading) and academic well-being (academic self-concept, perceived LDs, and school burnout; Korhonen et al., 2014). A similar phenomenon of mixed profiles has also been documented in mental health research, referred to as a dual-factor, two-continua, or bi-dimensional model (e.g., Renshaw, Eklund, Bolognino, & Adodo, 2016; Suldo & Shaffer, 2008).

In line with the third hypothesis and previous studies girls had more internalizing behavior, and boys had lower levels of school motivation (Roeser et al., 1998, 1999; Tuominen-Soini & Salmela-Aro, 2014), but not in all measures, only lower levels of school enjoyment and literacy motivation. Furthermore, other studies have shown additional reasons to worry over boys. Males have for example been shown to be over-represented among young people who are neither in employment nor in education or training in Finland (Organisation for Economic Cooperation and Development [OECD], 2016).

Overall, the present findings supported previous studies in that task-focused behavior (Dweck et al., 1995; Elliot et al., 1999; Onatsu-Arvilommi & Nurmi, 2000), school enjoyment (Hagenauer & Hascher, 2014; Pekrun, 1992, 2006, 2009), and math and literacy motivation (Eccles-Parsons et al., 1983; Wigfield & Cambria, 2010; Wigfield & Eccles, 1992, 2000) were associated with school achievement. The novel finding was that reading fluency, reading comprehension, math performance, and their comorbid difficulties had different links to school motivation and emotional well-being profiles. Whereas the relationship between school motivation and math and reading performance was clear, the link between emotional well-being and school achievement was more indirect. Although we found groups with low

school motivation to have a higher percentage of students with low performance in math and/or reading, low performance did not always indicate problems in the other domains. For example, the group with average motivation and well-being also included many adolescents with low performance in math and/or reading.

The findings suggest heterogeneity within adolescents with low academic performance. Therefore, it is important to note that not all students may benefit from similar educational support, and a more comprehensive approach is needed to be able to support motivation, well-being, and learning. The findings also contribute practical knowledge for teachers and aids with intervention planning. Students with low motivation and low well-being are those at the highest risk for negative consequences in life. However, high levels of school motivation and school achievement do not guarantee emotional well-being. Therefore, school personnel should be interested in students beyond their achievement level or even beyond school motivation, and pay attention to subtle signs of students' well-being, which may at first go unnoticed.

This study has several limitations that need to be taken into account when interpreting the results. First, this study was conducted in Finland where the school system and the services provided may differ from other countries; therefore, generalizing the findings to very different educational systems should be done carefully (Björn, Aro, Koponen, Fuchs, & Fuchs, 2016). Second, we used the 25% cutoff to determine low performance, which, although used commonly, is quite lenient (e.g. Murphy et al., 2007). Third, the study was cross-sectional, which precludes addressing causal links between skills, motivation, and well-being. Fourth, environmental factors, such as the quality of special education in the school, support from the teacher, family, and friends, and free time activities that may play a role in the associations, were not controlled for in this design.

The present study contributes to the existing literature by showing that a substantial number of adolescent have either low motivation, low emotional well-being, or both at the end of comprehensive school. Furthermore, students with diverse school motivation and emotional well-being profiles show different associations with math and reading performance. However, low emotional well-being was associated with academic performance only if a student also had low school motivation.

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III

**INTERPERSONAL COUNSELING IN THE TREATMENT
OF ADOLESCENT DEPRESSION.
A RANDOMIZED CONTROLLED EFFECTIVENESS AND
FEASIBILITY STUDY IN SCHOOL HEALTH AND WELFARE
SERVICES**

by

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Interpersonal Counseling in the Treatment of Adolescent Depression: A Randomized Controlled Effectiveness and Feasibility Study in School Health and Welfare Services

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Abstract

In order to offer early and accessible treatment for adolescents with depression, brief and effective treatments in adolescents' everyday surroundings are needed. This randomized controlled trial studied the preliminary effectiveness, feasibility, and acceptability of interpersonal counseling (IPC) and brief psychosocial support (BPS) in school health and welfare services. The study was conducted in the 28 lower secondary schools of a large city in Southern Finland, randomized to provide either IPC or BPS. Help-seeking 12–16-year-old adolescents with mild-to-moderate depression, with and without comorbid anxiety, were included in the study. Fifty-five adolescents received either 6 weekly sessions of IPC or BPS and two follow-up sessions. Outcome measures included self- and clinician-rated measures of depression, global functioning, and psychological distress/well-being. To assess feasibility and acceptability of the treatments, adolescents' and counselors' treatment compliance and satisfaction with treatment were assessed. Both treatments were effective in reducing depressive disorders and improving adolescents' overall functioning and well-being. At post-treatment, in both groups, over 50% of adolescents achieved recovery based on self-report and over 70% based on observer report. Effect sizes for change were medium or large in both groups at post-treatment and increased at 6-month follow-up. A trend indicating greater baseline symptom severity among adolescents treated in the IPC-providing schools was observed. Adolescents and counselors in both groups were satisfied with the treatment, and 89% of the adolescents completed the treatments and follow-ups. This trial suggests that both IPC and BPS are feasible, acceptable, and effective treatments for mild-to-moderate depression in the school setting. In addition, IPC seems effective even if comorbid anxiety exists. Our study shows that brief, structured interventions, such as IPC and BPS, are beneficial in treating mild-to-moderate depression in school settings and can be administered by professionals working at school.

Trial registration <http://www.clinicaltrials.gov>. Unique identifier: NCT03001245.

Keywords Adolescents · Depression · Interpersonal counseling · Brief treatment · School health and welfare services

Introduction

A marked increase in the incidence of depressive symptoms and disorders occurs rapidly after the age of 13 (Hankin et al., 1998; Thapar, Collishaw, Pine, & Thapar, 2012). In

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Finland, approximately 17% of adolescent females and 8% of adolescent males suffer from moderate or severe depressive symptoms (Savioja, Helminen, Fröjd, Marttunen, & Kaltiala-Heino, 2015). As many as a fifth of adolescents experience a depressive episode by the end of the adolescent period (Gore et al., 2011). Typically, major depressive disorder (MDD) in adolescence is associated with recurrent episodes, need for psychiatric treatment (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015), impairments in school functioning as well as in family and social relationships (Birmaher et al., 1996; Flament, Cohen, Choquet, Jeammet, & Ledoux, 2001), and elevated risk of suicide and self-harm (e.g., Hawton, Saunders, & O'Connor, 2012). In addition, alcohol or substance abuse or dependence is frequently associated with depression (e.g., Brière, Rohde, Seeley, Kleind, & Lewinsohn, 2014; Churchill & Farrel, 2017). MDD is as well frequently comorbid with anxiety disorders (Garber & Weersing, 2010). Depression comorbid with anxiety disorders is also likely to be more chronic and resistant to change (Jacobson & Newman, 2017).

Mental health problems, including depression, are largely undertreated among adolescents (Haarasilta, Marttunen, Kaprio, & Aro, 2003; Jörg et al., 2016; Merikangas et al., 2010). In Finland, practically all adolescents attend public secondary schools (Official Statistics of Finland, 2017); thus, the school context offers a good opportunity for screening and early intervention for depression (Leaf et al., 1996; Werner-Seidler, Perry, Callear, Newby, & Christensen, 2017; Williams, O'Connor, Eder, & Whitlock, 2009). As service users, adolescents identify easy access and minimal disruption to school work as important criteria for their engagement in mental health treatment (Persson, Hagquist, & Michelson, 2017).

According to meta-analyses, cognitive behavioral therapy (CBT) and interpersonal psychotherapy for adolescents (IPT-A) are effective treatments for depression in adolescents (Pu et al., 2017; Weisz et al., 2013, 2017; Zhou et al., 2015). Although adaptations of these treatments have shown promise in reducing depressive symptoms in population-based student samples (Clarke et al., 1995; Horowitz, Garber, Ciesla, Young, & Mufson, 2007; La Greca, Ehrenreich-May, Mufson, & Chan, 2016; Ruffolo & Fischer, 2009; Young, Mufson, & Davies, 2006a; Young, Mufson & Gallop, 2010), more research is needed to establish the effectiveness of such treatments for adolescents with mild or moderate clinical depression in naturalistic settings (e.g., Arora, Collins, Dart, Hernández, Fetterman, & Doll, 2019; Mufson, 2010; Mufson, Pollack, Moreau, & Weissman, 2004a).

IPT-A is adapted from the adult-based interpersonal psychotherapy (IPT) (Klerman Weissman, Rounsaville, & Chevron, 1984; Markowitz & Weissman, 2012). A central theoretical principle behind interpersonal therapy is that there is a bidirectional link between interpersonal

functioning and depressive symptoms. Specifically, as adolescents learn how to solve their interpersonal problems in treatment, their mood gradually improves (Mufson et al., 2004a; Mufson, Pollack, Wickramaratne, Nomura, Olfson, & Weissman, 2004b). As interpersonal difficulties are likely to drive psychopathology in adolescence (Rueter, Scaramella, Wallace, & Conger, 1999), IPT-A may be particularly well suited to as a treatment option (Gunlicks-Stoessel, Mufson, Jekal, & Turner, 2010; Horowitz et al., 2007; Thapar et al., 2012). In school-based trials, IPT-A has been more effective than treatment as usual (TAU) for depression (Mufson et al., 2004b) and for reducing adolescents' suicidal ideation and hopelessness (Tang, Jou, Ko, Huang, & Yen, 2009), even when adolescents have comorbid anxiety symptoms (Young, Mufson, & Davies, 2006b).

However, the 12-session IPT-A treatment may be difficult to implement due to limitations imposed by the school curriculum, such as a limited recruitment period or restricted time to conduct sessions (Girio-Herrera, Ehrlich, Danzi & La Greca, 2019). Furthermore, professionals who work at school may have multiple and competing tasks, and high workload (Mufson, 2010). For example, in Finland, school social workers and school psychologists typically work in multiple schools and are responsible for about 1000 students (Hietanen-Peltonen, Vaara, & Laitinen, 2019a, b). Due to such obstacles, evidence-based interventions have been modified to include fewer sessions (Mufson, Yanes-Lukin, & Anderson, 2015; Weissman et al., 2014; Wood, Harrington, & Moore, 1996). Most modifications assume that focusing on only the key therapeutic components might lead to effectiveness comparable to that of the original treatments (see Mufson et al., 2015).

The present study examined the effectiveness, feasibility, and acceptability of interpersonal counseling (IPC), for treating adolescent depression in a school setting. IPC is a brief (typically up to six sessions) treatment derived directly from IPT (Weissman & Klerman, 1993; Weissman, Markowitz, & Klerman, 2018). An advantage of IPC is that also professionals other than healthcare personnel can be trained to deliver it (Weissman et al., 2014). Internationally, IPC has mainly been used with adults in community settings (e.g., Kontunen et al., 2016; Menchetti et al., 2010, 2014). For example, in a Finnish study, Kontunen et al. (2016) found IPC delivered by nurses in a community health and welfare service was equally effective in improving major depressive disorder (mild or moderate) as the full IPT. A recent study (Wilkinson, Cestaro, & Pinchin, 2018) found IPC to be a feasible intervention, leading to a decrease in depressive symptoms among adolescents treated by youth workers. A novel and important contribution of the present study is to extend the work on IPC to the treatment of clinical depression among adolescents in school settings.

All Finnish schools have their own school health and welfare services (SHWSs). The main task of this service is to support the well-being of students and well-being of the whole school community by providing both individual- and community-focused interventions (Student Welfare Act 1287/2013). In SHWS, school psychologists, social workers, and nurses (hereafter collectively referred to as school workers, SWs) traditionally have based their practice on the prevention of mental health problems, offering supportive care on an as-needed basis, and counseling adolescents when they face psychosocial problems (Ministry of Social Affairs and Health, 2009). Furthermore, the work duties of SWs vary by profession (e.g., annual physical examinations are provided by school nurses), and the treatment of mental health problems is only a part of each professional group's duties. As the Finnish SHWS has followed a broad prevention agenda, evidence-based, structured interventions targeting mental health disorders have not been widely used despite a growing recognition of the need for early interventions (see Haravuori et al., 2017; Ranta et al., 2018).

In summary, there is a clear need to develop and implement effective and brief treatments for adolescent depression in schools, as well as in other service contexts, that provide youth with easy access to treatment (Persson et al., 2017). To our knowledge, no school-based trials examining the effectiveness, feasibility, and acceptability of IPC have been reported. Thus, the aim of the present study was to assess the effectiveness, feasibility, and acceptability of IPC as compared with brief psychosocial support (BPS) in the Finnish SHWS in a pilot randomized controlled trial.

Methods

Participants

Fifty-five 12–16-year-old students (43 girls and 12 boys) were recruited from the 28 public lower secondary schools of a large city in Southern Finland and began either IPC or BPS (see Fig. 1) during September 2016 to April 2017. Fifty of the adolescents were born in Finland, and all spoke fluent Finnish. The treatment-providing SWs, recruited from local secondary school SHWS, were school psychologists ($n = 14$), school social workers ($n = 15$), or school nurses ($n = 7$) by profession. In addition, one community health and welfare service for adolescents with a target of treating mild or moderate psychosocial problems was included as a study site, including one nurse and one psychologist.

Procedure

Researchers and managers from University Hospital and the SHWS collaborated to conduct the IPC implementation

project from 2016 to 2017. IPC training was delivered in two waves. All SWs in sites randomized to IPC received their training in August 2016 and delivered IPC through the school year 2016–2017. SWs in BPS sites delivered BPS through the school year 2016–2017 and received IPC training after the data collection period ended, in August 2017.

Randomization

The study was based on a cluster-randomization design: The participating schools (sites) were randomized to provide either IPC or BPS. All adolescents participating in the study within the same school received the same intervention. Twenty-seven schools and one community health and welfare service were randomized to receive either IPC or BPS by randomly and blindly pulling a card containing the name of the school/site from a container.

As a result of the randomization, 12 schools and one community health and welfare service were defined as IPC sites. Correspondingly, 15 schools were defined as BPS sites. However, one SW worked in two secondary schools, of which one was randomized to provide IPC and the other BPS. As she was trained in IPC, she provided IPC in both schools.

Adolescents treated in schools and in the community health and welfare service did not differ on the two primary outcome measures of depression at baseline (Beck Depression Inventory = $t(4.02, 53) = 1.14, p = .26$; Adolescent Depression Rating Scale = $t(2.70, 52) = .75, p = .46$).

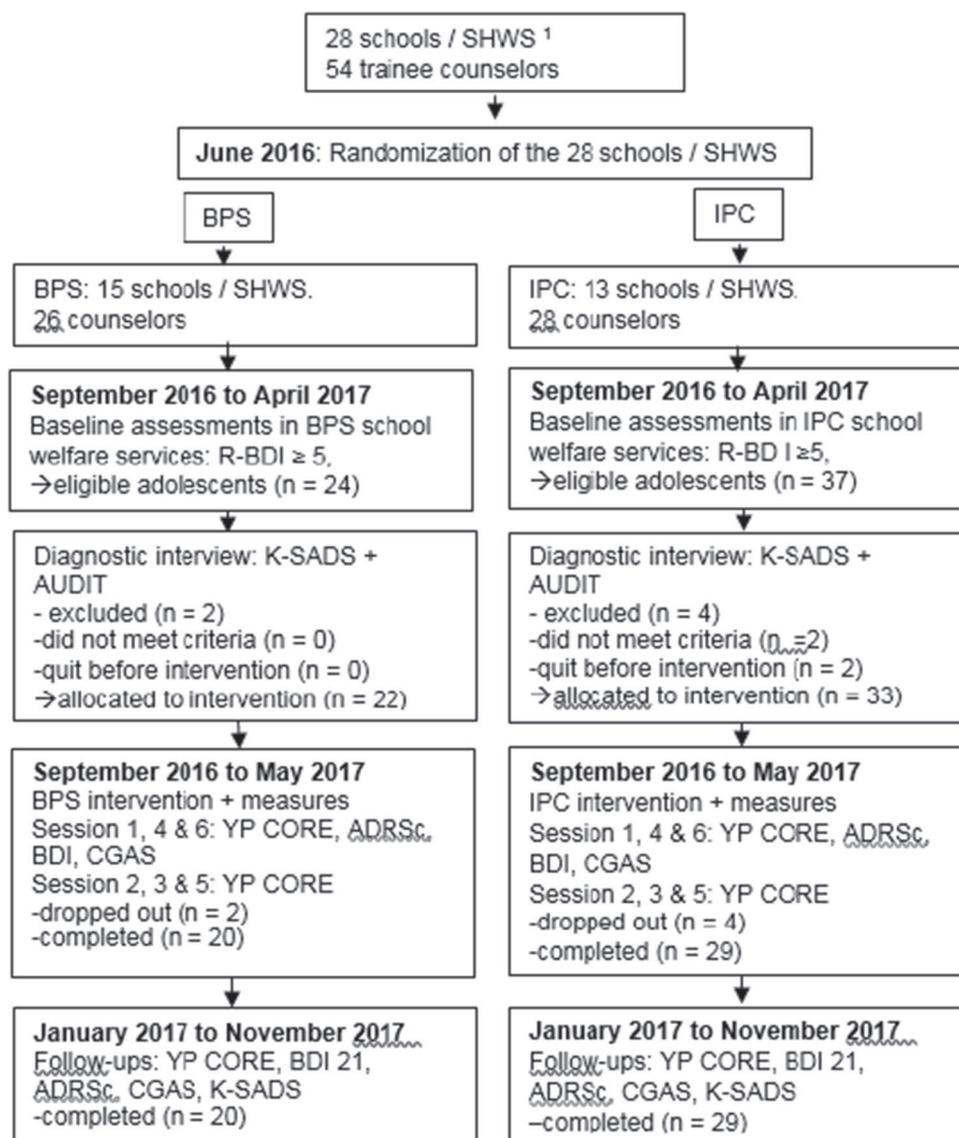
Recruitment

As our intention was to study the effectiveness, feasibility, and acceptability of the treatments in a naturalistic setting, the recruitment process followed the normal pathways available for adolescents to obtain help or support from the SHWS (see Fig. 2). Students informally identified as experiencing problems possibly related to depression by SWs in SHWS were first screened for depression with a short depression measure; those who screened positive and consented were referred for a diagnostic interview. No incentives were given for participation. All participating students and their parents/legal guardians provided their written informed consent.

Diagnostic Evaluation

A structured psychiatric interview, the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL, Kaufman et al., 1997), was administered by a clinical psychologist to confirm adolescents met DSM-5 inclusion criteria (American Psychiatric Association, 2013) and that no exclusion criteria were present

Fig. 1 Study design and flowchart. Flowchart from the study. *SHWS* School Health and Welfare Services, *BPS* brief psychosocial support, *IPC* interpersonal counseling, *R-BDI* Finnish modification of the 13-item Beck Depression Inventory, *K-SADS* the Schedule for Affective Disorders and Schizophrenia for School-Age Children; *AUDIT* Alcohol Use Disorders Identification Test; *YP-CORE* Young Person's Clinical Outcomes in Routine Evaluation; *ADRS_c* Adolescent Depression Rating Scale clinician version; *BDI* Beck Depression Inventory; *CGAS* Children's Global Assessment Scale; *Excluded* if severe major depression; actively suicidal; a current diagnosis of substance abuse or dependence; severe primary anxiety or other mental disorders causing severe impairment; schizophrenia or other psychotic disorders. ¹One primary level unit providing psychosocial treatments for youth with symptoms on corresponding level than among those in the SHWS was included and randomized as one school/study site



(see Figs. 1, 2). Potential comorbidity with alcohol abuse was assessed with a self-report measure, the Alcohol Use Disorders Identification Test (AUDIT; Reinert & Allen, 2002).

Inclusion in the trial was based on data from the K-SADS-PL and AUDIT, and, when needed for diagnostic consideration, consultation with a psychiatrist. All adolescents who received a diagnosis of mild (5–6/9 DSM-5 diagnostic criteria for major depression, mild functional impairment) or moderate (6–7/9 DSM-5 diagnostic criteria for major depression, moderate functional impairment) major depressive disorder, dysthymia, or depressive disorder not otherwise specified, according to the DSM-5 definitions (American Psychiatric Association, 2013), were included in the study (see Table 1).

The following were criteria for exclusion from the study: severe major depression (8–9/9 DSM-5 diagnostic criteria for major depression, severe functional impairment); acutely suicidality; current diagnosis of alcohol or other substance abuse or dependence; primary and severe anxiety disorder or other mental disorder causing severe impairment (e.g., being unable to go to school); and a psychotic disorder. Excluded adolescents were referred to specialized psychiatric care. Adolescents also were excluded if they were already in mental health treatment elsewhere or if there was an acute need for child protection services. In total, four adolescents met the exclusion criteria: one with severe major depression, one acutely referred to child protection services, one with a primary and severe anxiety disorder, and one with a psychotic disorder. In addition, two adolescents declined to participate in the study after the diagnostic evaluation (see Fig. 1).

Fig. 2 Referral process. *Note:* SW school worker, SHWS student health and welfare service, R-BDI Finnish modification of the Beck Depression Inventory, K-SADS the Schedule for Affective Disorders and Schizophrenia for School-Age Children. *As illustrated in the upper part of the figure, there are several routes to obtain help for an adolescent who experiences problems in mental health or well-being. In addition, a student may be referred to IPC/BPS based on the results of screenings of mood conducted by the school nurse. Such screenings are conducted with specific age cohorts (e.g., eighth graders) each year, but not with all students

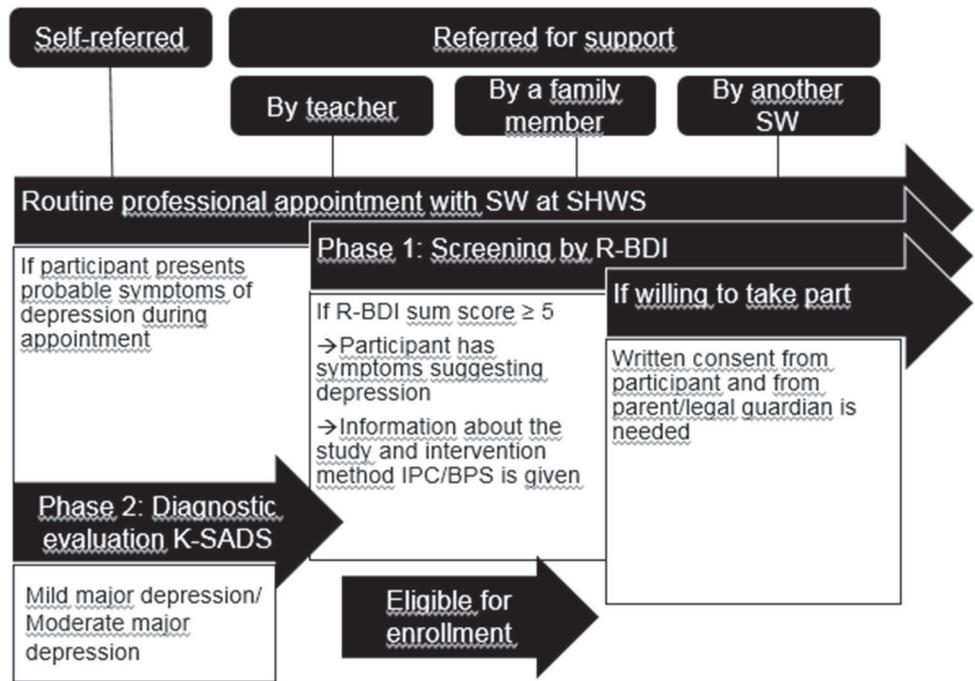


Table 1 Baseline characteristics and diagnostic evaluation of adolescents in the IPC and BPS groups

Baseline characteristics	IPC group N=33 (range)	BPS group N=22 (range)	p value
Age (in years)	14.42 (12.91–16.09)	14.71 (13.42–16.08)	.19
Gender	28 (85%) female	15 (68%) female	.19
Grade 8th	16 (48%)	11 (50%)	.78
Living in single parent home	18 (55%)	10 (46%)	.51
Average	8.30 (6.2–9.3)	8.34 (6.7–9.8)	.84
SES	3.23 ^a	2.90 ^a	.51
AUDIT	1.29 (0–12)	1.00 (0–15)	.55
BDI	18.97 (0–37)	15.23 (0–32)	.13
ADRS _c	17.94 ^a (6–37)	13.95 (7–27)	.06
YP-CORE	16.30 (7–26)	14.95 (2–27)	.38
CGAS	66.53 ^a (55–90)	66.64 (32–88)	.97
Depression, mild ¹	23 (69.70%)	19 (86.40%)	.15
Depression, moderate ²	10 (30.30%)	3 (13.60%)	.15
Comorbid anxiety disorder	14 (42.40%)	3 (13.60%)	.04*
Comorbid other disorder	3 (9.10%)	2 (9.10%)	.54

IPC interpersonal counseling, BPS brief psychosocial support, SES socioeconomic status defined by ISCO-88; AUDIT Alcohol Use Disorders Identification Test, BDI Beck depression Inventory, ADRSc Adolescent Depression Rating Scale, YP-CORE Young Person’s Clinical Outcomes in Routine Evaluation, CGAS Children’s Global Assessment Scale

1=MDD, severity mild, depression not otherwise specified, dysthymia 2=MDD, severity moderate or comorbid dysthymia. Comorbid anxiety disorders include: panic disorder (n=1), agoraphobia (n=1), social phobia (n=8), generalized anxiety disorder (n=6), unspecified anxiety disorder (n=1). Comorbid other disorders include: attention deficit/hyperactivity disorder (n=2), post-traumatic stress disorder (n=3)

^aData missing in one

*p < .05

Diagnostic evaluation and all other study assessments were administered again at 3- and 6-month follow-up by two clinical research psychologists trained to use the interview and other measures used in the study. Diagnostic remission was defined as not fulfilling the criteria for a depressive disorder at both follow-ups. The clinicians performing the diagnostic evaluations were not blinded to the treatment condition.

Treatments

Both IPC and BPS treatments took place within the school buildings, in the offices of the SWs who provided the treatments, with the exception of the community health and welfare service, which is located in the community. As students have right to use SHWS during school days, they had an option to choose whether the treatments took place during school days, or after school days.

Interpersonal Counseling (IPC)

IPC is a brief, time-limited, and individual-based treatment (3–8 sessions) focusing on current symptoms of depression in an interpersonal context. It is a shortened version of IPT and was originally designed to be administered by non-mental health professionals for patients with mild depression (Weissman et al., 2014). The goals of IPC are to reduce the individuals' depressive symptoms and improve interpersonal functioning by relating the symptoms to one or more of four life stressors (grief, role disputes, role transitions, and loneliness/isolation) and by developing strategies for dealing with these stressors. Patients are helped to recognize the triggers of depression and to identify the resources that they have (Weissman et al., 2014).

In this study, IPC was delivered in six 45-minute sessions over a 6–12-week period, following the structure of IPC as delineated by Judd, Weissman, Davis, Hodgins, and Piterman (2004). IPC involves three phases: Firstly, psychoeducation on depression is provided; secondly, active therapeutic work within the agreed focus area is carried out; and finally, discussion on progress and on future challenges is undertaken. In the middle phase, IPC-specific techniques (i.e., clarification, summaries, questions, communication analysis, decision analysis, and role-play) are used. The treatment was administered according to the procedures specified in the IPC treatment manual (Weissman & Verdelli, 2013), and its adaptation for adolescents (Wilkinson & Cestaro, 2015). A list of assessed therapeutic components of IPC can be found online (see Online Resource 2).

Brief Psychosocial Support (BPS)

BPS is based on the methods and techniques used by SWs in their routine work. However, routine work in SHWS in Finland has traditionally focused on prevention and supporting well-being of students, not on assessing and treating mental health disorders or evaluating psychosocial functioning (Haravuori et al., 2017). To deliver BPS, the SWs were instructed to assess, repeatedly monitor, and target symptoms of depression in addition to using their routine skills to support the students to cope with symptoms of depression, and to limit the BPS to six sessions over 6–12 weeks.

Thus, BPS represents an enhanced, more intensive, and more focused version of the routine counseling provided by professionals working in the Finnish SHWSs. To ensure comparability across treatments, BPS was delivered with the same frequency and session duration as IPC, both interventions included also the same assessment measures. (See detailed information about the study design from Fig. 1.)

Clinician Training

Prior to both IPC or BPS, all participating SWs were given a one-day training workshop on the identification and assessment of depression and the use of all assessment measures included in the trial and were instructed to systematically and repeatedly assess and monitor symptoms of depression in their adolescent clients.

The IPC training consisted of 3 days of didactic and practical training and ongoing clinical supervision. Didactic training included a one-day tutorial on the basic principles of IPC and a two-day clinical workshop on the theory and principles behind interpersonal therapy and the clinical use of IPC techniques with adolescents. The IPC treatment manual adapted for adolescents (Wilkinson & Cestaro, 2015) was used in the training. Clinical method-specific supervision was provided in groups of 5–6 IPC counselors every second week (lasting 2.5 h) for the duration of the trial. Each IPC counselor discussed his/her case/cases during supervision. Also, general discussion about the IPC process was allowed. Supervisors were clinicians from the psychiatric special healthcare services (University Hospital) trained in IPT-A and who had at least a year's experience in delivering IPT-A. Supervisors also attended the IPC training. On an as-needed basis, the trainee IPC counselors could receive extra supervision by phone or via e-mail to answer short, specific questions in between supervision sessions, but the amount of extra contact was not tabulated.

Measures

Screening, Diagnostic, and Outcome Measures

The screening measure used was the Finnish modification of the 13-item revised Beck Depression Inventory, R-BDI (Beck & Beck, 1972; Raitasalo, 2007). It is widely used in the Finnish SHWSs for screening depressive symptoms. The items are scored 0–3 (with 3 indicating the greatest severity) and then summed, giving a total score ranging from 0 to 39. Cronbach's alpha for the 13 items in this study population was .68.

The diagnostic evaluation used the K-SADS-PL (Kaufman et al., 1997). The current, updated K-SADS-5 version was used; it is a semi-structured interview covering both lifetime and current mental disorders according to the DSM-5 diagnostic criteria. The previous DSM-IV version of this instrument has been found to be a valid measure of adolescents' affective and anxiety disorders (Kaufman et al., 1997; Lauth, Arnkelsson, Magnússon, Skarphéðinsson, Ferrari, & Pétursson, 2010). In addition, adolescents completed AUDIT (Reinert & Allen, 2002), which is a 10-item questionnaire measuring alcohol use and/or alcohol-related problems. The AUDIT has been reported to have acceptable psychometric properties when used with adolescents (Liskola et al., 2018; Santis et al., 2009).

The two primary treatment outcome measures defined in the trial protocol were: (a) self-reported change in depression symptoms as measured by the Beck Depression Inventory (BDI; Beck et al., 1961) and (b) clinician-reported change in depression symptoms as measured by the Adolescent Depression Rating Scale, clinician version (ADRS_c; Revah-Levy, Birmaher, Gasquet, & Falissard, 2007). The BDI is a widely used 21-item questionnaire for depression and also a well-studied measure for depressive symptoms among adolescents (Brooks & Kutcher, 2001; Myers & Winters, 2002). The items are rated using a 4-point Likert scale ranging from 0 to 3, with a range of total scores from 0 to 63. A total score of 10 or more is generally used to indicate clinical depression (Beck, Steer, & Carbin, 1988). The ADRS_c was rated by the SWs delivering the IPC or BPS treatments; it is a 10-item rating scale specifically designed to assess the severity of symptoms of depression in adolescents. It measures both the internal state of depression (e.g., irritability, negative perceptions of self) and external manifestations related to depression (e.g., investment in school, relationship withdrawal) (Revah-Levy et al., 2007). Items are rated from 0 to 6 (with 6 indicating the greatest severity), and the scores are summed (range 0–60). The optimal cutoff for a clinical diagnosis of depression is a total score of 15. The ADRS_c has acceptable psychometric properties with good convergent, discriminant, and factorial validity, and good internal consistency (Revah-Levy et al., 2007). In

this study population, Cronbach's alpha reliability was .89 for the BDI and .80 for the ADRS_c.

The secondary treatment outcomes were: (a) change in adolescent self-reported psychological distress/well-being as measured by the Young Person's Clinical Outcomes in Routine Evaluation (YP-CORE; Twigg et al., 2009) and (b) change in global psychosocial functioning as measured by the clinician-rated Children's Global Assessment Scale (CGAS; Shaffer et al., 1983). The YP-CORE is a commonly used, 10-item measure for the assessment of clinical change among young people within counseling and treatment settings. It has been shown to possess good psychometric properties, to be reliable and sensitive to change, and it is well accepted by young people (Gergov et al., 2017; Twigg et al., 2015). It assesses subjective well-being, psychological symptoms and problems, overall functioning and social interactions, and risk of self and others during the previous week. Items are rated on a 5-point Likert scale (0 = not at all; 4 = most or all of the time), and the scores are summed (range 0–40). The recommended cutoff for clinically significant impairment is 14. The CGAS is a well-established and widely used rating scale for the measurement of adolescents' overall functioning. It is reliable between raters and across time, and it has demonstrated good convergent validity (Bird et al., 1996). The maximum score of 100 indicates superior functioning in key life contexts: at home, at school, with peers; the minimum score of 1 indicates the loss of function on these functional domains and the need for constant supervision. In the current study, Cronbach's alpha reliability was .74 for the YP-CORE and .84 for the CGAS.

Feasibility and Acceptability Assessments

For both treatments, feasibility was assessed by evaluating adolescents' treatment engagement as evidenced by completing treatment, session attendance, and attendance at follow-ups. In addition, IPC counselors' rate of attendance at supervision sessions was evaluated as an indicator of feasibility. These indicators are directly related to administering the treatments and supervision and do not capture the wider organizational aspects of feasibility, which are related to how the treatments can be arranged within a given agency.

Adolescents' perception of their treatment, as treatment satisfaction, perception of change, and collaboration with the counselor was assessed as indicator of treatment acceptability (Proctor et al., 2011). A subsample of 17 adolescents (approximately 25% of the study sample) were interviewed either face to face ($n=9$) or by telephone ($n=8$). A structured questionnaire, modified from the Elliot Client Change Interview (Elliot, 2012; Elliot & Rodgers, 2008), was used. The subsample consisted of all adolescents who reached 3-month post-treatment time point between March and April 2017. The interviews were conducted at the 3-month

follow-up by two psychology students blind to the treatment condition and trained to conduct the interview. The questions covered the adolescents' overall satisfaction with the treatment (*"How has it felt to be in counselling?"*); their perception of change since the treatment began (e.g., *"What changes, if any, have you noticed in yourself since counselling started?"*); questions about their perception of the different aspects of the therapeutic process (e.g., *"What has been helpful about counselling so far?"* or *"What kinds of things about the counselling have been hindering, unhelpful, negative or disappointing for you?"*); and the research process (e.g., *"What has it been like to be involved in this research?"*). Questions were added that covered collaboration with the counselor (*"How collaborative was your work with your counselor?"*; *"Did you feel your feelings and thoughts were understood and accurately perceived by the counselor?"*; *"Did you feel you were understood by the counselor?"*; *"Did your relationship with your counselor change during meetings?"*) and the ending of treatment (*"Do you still need treatment?"*; if new treatment was begun: *"How do you feel about the new treatment?"*). For the IPC group, one set of questions were added that covered the use of the IPC manual (*"What did you think about homework?"*; *"What was helpful about this procedure?"*; *"Was there anything that didn't work?"*).

The acceptability of IPC and BPS for the SWs was evaluated using a structured questionnaire developed for the study (see Table 4). Seven questions assessed SW's satisfaction with the treatment, the assessment instruments, and the implementation process in the school. In addition, one question was presented to the BPS counselors about the need of supervision; four questions were presented to the IPC counselors about the IPC training and supervision. Ratings were given on a 4-point scale.

Assessment of Implementation Fidelity

To assess the fidelity of implementation, the IPC counselors' adherence to clinical principles of IPC was evaluated by supervisors' ratings; these ratings were based on the trainees' casework presented in the supervision sessions. A modification of the IPC Competencies List (Wilkinson, 2015) was used (for the original version see IPT Audio Recording Rating Scale, Law, 2011). The IPC Competencies List contains 34 competencies divided into generic therapeutic competencies (10 items), basic IPC competencies (13 items), IPC-specific techniques (5 items), and overarching therapeutic competencies (3 items) and IPC-related (3 items). In this trial, only 20 competencies related to IPC were assessed (e.g., Knowledge of basic principles and rationale for IPC; Ability to use decision analysis; Ability to balance being focused and maintaining the therapeutic alliance). (See list of assessed therapeutic components in Online Resource

2.) These were selected because the main focus of interest was adherence to the method-specific principles of IPC and because of the limited time resources available to the supervisors. Supervisors rated the trainee IPC counselors' adherence to clinical principles of IPC on a 5-point scale: 0 = skill/technique was not used/was not relevant at this point, 1 = skill/technique was not mastered at all, 2 = skill/technique was mastered to a small amount, 3 = skill/technique was mastered relatively well, 4 = skill/technique was mastered well.

Statistical Analysis

Adolescents in the IPC and BPS groups were compared on baseline characteristics (age, gender, class, average grade in school, living in a single parent home, socioeconomic status), baseline values of outcome measures (BDI, ADRSc, YP-CORE, and CGAS), and the categorical presence of a depressive disorder, anxiety disorder, and other psychiatric disorders. Comparisons used Chi-square tests for categorical data and independent-samples t-tests for continuous data.

All analyses used an intent-to-treat design. Overall efficacy of both IPC and BPS was examined by comparing the baseline scores of the predefined primary outcome measures (BDI and ADRSc) with their respective scores immediately after the treatment, and at 3-month and 6-month follow-ups, using effect sizes. Secondary analyses compared YP-CORE and CGAS scores at baseline with their respective scores at treatment termination, and at 3-month and 6-month follow-ups, respectively. Effect sizes were estimated using Cohen's *d* and were defined as small ($d > .20$), medium ($d > .50$), and large ($d > .80$) (Cohen, 1988).

Relative effectiveness of IPC and BPS was examined by using repeated-measures analysis of variance (ANOVA), with intervention type (IPC or BPS) as the between-level factor and time (baseline, treatment endpoint, 3-month and 6-month follow-ups) as the within-level factor. Separate ANOVAs were conducted for all outcome measures: BDI, ADRSc, YP-CORE, and CGAS.

Clinical response was defined as having at least 50% symptom reduction in the primary outcome measures (BDI and ADRSc). This definition of clinical response is the standard definition used in many psychiatric efficacy and effectiveness studies (e.g., Pu et al. 2017). Clinical recovery was defined as absence of depressive symptoms or the presence of minimal depressive symptoms (score < 10 in BDI; score < 15 in ADRSc). Data were analyzed using Chi-square tests, counting relative risk and odds ratios. Missing data for dropout adolescents were imputed by carrying the last observation forward until the 6th session if the adolescent had at least one assessment in a scale after baseline.

Feasibility of the treatments for the adolescents was examined by calculating the adolescents' completion rate and attendance rate for planned sessions for both treatments. In addition to assess feasibility, IPC counselors' attendance rate for IPC supervision sessions was counted. The acceptability of IPC and BPS for the SW's was evaluated by calculating item means of a structured questionnaire developed for the study. To ensure that IPC was implemented with fidelity, the trainee IPC counselors additionally were evaluated by examining item means from the modified IPC Competencies List (Wilkinson, 2015).

Qualitative Analysis

Content analysis was used to categorize the data from the modified Client Change Interview (see Table 3) for evaluating acceptability of IPC and BPS for the adolescents. The data were coded by a member from research group (P.P.) using conventional content analysis (see Hsieh & Shannon, 2005). Each answer from the Client Change Interview was read carefully; key words or phrases that captured the adolescent perception of their treatment were recorded. The number of categories which developed through reading participants' transcripts was kept limited. Preliminary codes were based on four first transcripts. The remaining transcripts were coded according to preliminary codes, and new codes were added if a response did not fit into an existing code. After all transcripts were coded, all data within each code were reviewed again, some data were combined, some data were not used (data which described adolescents' perceptions specifically about research process were not used, as this was not relevant). The resulting categories were: feeling after the treatment, collaboration with the counselor, helpful aspects during the treatment, difficult aspects during the treatment and need of extra treatment after the treatment.

Results

Baseline Characteristics

At baseline, there were no significant differences between the IPC and BPS groups on depressive symptoms (BDI), psychological distress (YP-CORE), or global functioning (CGAS). Although not statistically significant, the sum score on ADRSc was higher among adolescents receiving IPC than among those receiving BPS (ADRSc sum score 17.94 vs. 13.95, $p = .06$). Comorbid anxiety disorders were significantly ($X^2(1, n = 55) = 4.23, p = .04$) more common among adolescents randomized to IPC (39.4%) than BPS (13.6%) (Table 1). In addition, the proportion of

adolescents with moderate MDD was higher among those randomized to IPC (30.3%) than BPS (13.6%) (Table 1).

Due to the significant group difference in anxiety disorders at baseline, repeated measures of variance used baseline anxiety disorder as a covariate (ANCOVA) to examine anxiety disorder's effect on group differences and on change over time for all outcome measures. The analyses showed no significant effects for anxiety disorder as a covariate for any of the outcome measures; this suggests that anxiety disorders did not have an effect on changes over time or on differences between the treatment groups.

Effectiveness

The mean scores for the primary outcome measures (i.e., BDI, ADRSc) and the secondary outcome measure (i.e., YP-CORE) decreased and those of CGAS increased between treatment baseline and end of treatment, in both the IPC and BPS groups. At post-treatment, the effect sizes of the changes in IPC group were medium (range = 0.59–0.73) for all measures, whereas in BPS group all effect sizes were large (range = 0.83–1.53). Changes for both primary outcome measures were rather small in the IPC group between endpoint and 3-month follow-up (change in BDI mean = 0.78; change in ADRSc mean = -0.14), while in the BPS group BDI scores remained stable (change = 0.49), but ADRSc scores increased somewhat (change = 3.18). Between 3-month and 6-month follow-ups, decreases for both primary outcome measures were again observed in both groups. For the secondary outcome measures, we observed a continuous, gradual decrease in YP-CORE scores and increase in CGAS scores in IPC group, while in the BPS group a leveling of effect was seen at 3-month follow-up and gains again achieved between 3-month and 6-month follow-up points. (See Table 2 for effect sizes at follow-up points and Fig. 3 for the pattern of change of primary outcome measures from baseline to 6-month follow-up in both groups, Online Resource 1 for all outcome measures comparing pre-post-treatment and 3- and 6-month follow-ups in both IPC and BPS groups.)

The difference between the effectiveness of IPC relative to BPS was examined with a group by time repeated-measures analysis of variance for the four assessment waves of outcome measures. The interaction of group x time was not statistically significant, suggesting that the changes in all outcome measures over time were not different between the IPC and BPS groups. The main effects of group were not significant for any of the outcome measures. However, main effects of time were significant for the BDI ($F(3, 45) = 24.25, p = .000$), ADRSc ($F(3, 695) = 27.22, p = .000$), CGAS ($F(3, 45) = 15.94, p = .000$), and YP-CORE ($F(3, 45) = 30.87, p = .000$), indicating that adolescents in both groups improved in all outcome measures over time.

Table 2 Estimates of outcome measures, mean scores at baseline, gain scores during intervention and at 3- and 6-month follow-ups and estimates of effect sizes in IPC and BPS groups including group differences

Parameter	IPC			BPS			Group differences											
	Baseline (n)	End (n)	d	3 MFU (n)	6 MFU (n)	d	Baseline (n)	End (n)	d	3 MFU (n)	6 MFU (n)	d						
<i>Primary outcomes</i>																		
BDI	18.97 (33)	-7.14 (29)	0.73	0.78 (29)	0.58	-3.31 (29)	1.04	15.23 (22)	-6.45 (21)	0.83	0.49 (20)	0.67	-3.80 (20)	1.34	3.74	-0.68	0.29	0.71
ADRS _c	17.94 (32)	-6.45 (29)	0.73	-0.14 (29)	0.78	-3.07 (29)	1.20	13.95 (22)	-7.14 (22)	1.19	3.18 (20)	0.51	-3.45 (20)	1.21	3.98	0.68	-3.32	0.38
<i>Secondary outcomes</i>																		
YP-CORE	16.30 (33)	-5.39 (33)	0.73	-0.29 (29)	0.80	-2.38 (29)	1.28	14.95 (22)	-8.14 (22)	1.53	2.23 (20)	0.92	-1.95 (20)	1.36	1.35	2.74	-2.52	-0.43
CGAS	66.53 (32)	6.54 (29)	0.59	1.97 (29)	0.78	2.34 (29)	1.13	66.64 (22)	9.95 (22)	0.97	-1.84 (20)	0.93	4.75 (20)	1.31	-0.11	3.42	-3.81	2.41

IPC interpersonal counseling, BPS brief psychosocial support, BDI Beck Depression Inventory, ADRSc Adolescent Depression Rating Scale, YP-CORE Young Person's Clinical Outcomes in Routine Evaluation. The IPC and BPS parameter estimates at baseline are outset scores, and the other IPC and BPS parameter estimates are changes with time. The group difference parameter estimates at baseline are differences in baseline scores between IPC and BPS groups. Other group difference parameter estimates are group differences in changes, where + score indicates change in IPC group and - score indicates change in BPS group. *d* = Cohen *d* values, MFU = month of follow-up

At the end of treatment, 14 (48.3%) adolescents in IPC and 11 (52.4%) adolescents in BPS achieved treatment response (at least 50% symptom reduction) on the BDI (*OR* 1.18 (95% *CI* 0.38–3.63, *p* = .77)). Similarly, 15 (51.7%) adolescents in IPC and 15 adolescents (68.2%) in BPS achieved treatment response (at least 50% symptom reduction) on the ADRSc (*OR* 2.00 (95% *CI* 0.63–6.35, *p* = .24)). At the end of treatment, 15 (51.7%) adolescents in IPC and 14 (66.7%) in BPS achieved recovery on the BDI (sum score < 10) (*OR* 1.87 (95% *CI* 0.58–5.98, *p* = .29)). Twenty-one (72%) adolescents in IPC and 19 adolescents (86%) in BPS achieved recovery on the ADRSc (sum score < 15) (*OR* 2.41 (95% *CI* 0.56–10.44, *p* = .31)). Thus, many adolescents improved with treatment, but no significant group differences in treatment response or recovery were observed at the end of treatment.

At 3-month follow-up, 18 (62%) adolescents in IPC and 12 (60%) adolescents in BPS reached diagnostic remission for a depressive disorder, with no significant group differences (*OR* 1.09 (95% *CI* 0.34–3.51, *p* = .88)). Similarly, at 6-month follow-up, 23 (79%) adolescents in IPC and 15 (75%) in BPS reached diagnostic remission, with no significant group differences (*OR* 1.28 (95% *CI* 0.83–1.06, *p* = .72)).

Implementation Fidelity

IPC counselors' adherence to clinical principles of IPC (Basic IPC competencies; Specific techniques; Overarching IPC-specific competencies) was rated between "not used" and "mastered relatively well" after the first supervision session (mean ranged from 1.25 to 3.26), but after the sixth session IPC counselors' adherence was assessed to be between "mastered to a small amount" and "mastered well" (mean ranged from 2.00 to 3.82) in all areas. However, three IPC-specific techniques (communication analysis, decision analysis, and role-playing) had means that ranged from 2 to 2.91 after the sixth session. Those techniques were used infrequently during the treatments and thus were rated as *not used* for most of the sessions. Other IPC-specific techniques and all other items were rated above 2 after the first supervision session and above 3 after the sixth session, indicating IPC counselors' ability to deliver IPC. (See list of assessed therapeutic components in Online Resource 2.)

Feasibility and Acceptability

Almost all (89%) adolescents completed the treatment; only 6 of the 55 adolescents dropped out during the IPC and BPS. Treatment completion rates were 88% (*n* = 29) in IPC and 91% (*n* = 20) in BPS. The adolescents who completed the

Fig. 3 Group differences in BDI and ADRSc during intervention and follow-ups. *Note: IPC* interpersonal counseling, *BPS* brief psychosocial support, *BDI* Beck Depression Inventory, *ADRSc* Adolescent Depression Rating Scale, *MFU* month of follow-up

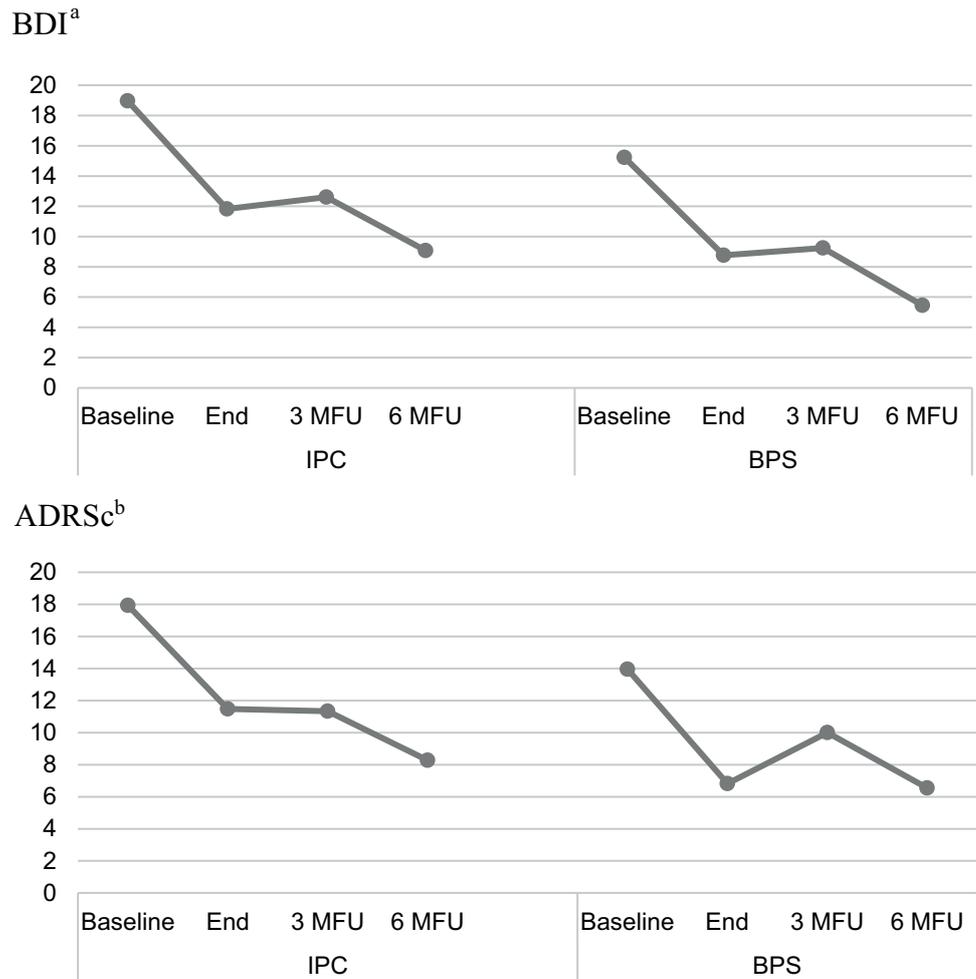


Table 3 Feasibility: Adolescents’ perceptions of treatment based on their responses to the modified Clinical Change Interview

Items	IPC Students <i>N</i> =8	BPS Students <i>N</i> =9
I am doing well after treatment	7	9
Rating for the treatment (0–10)	8.64	9.17
Collaboration with the counselor	One had a negative experience	All experiences were good
Helpful aspects in the treatment	Help to deal with the symptoms (<i>n</i> =3), act/think differently (<i>n</i> =3), talking (<i>n</i> =4), exercises (<i>n</i> =3)	Talking (<i>n</i> =4), to be understood and trust (<i>n</i> =3), practical tips (<i>n</i> =3), learn about problem area (<i>n</i> =3)
Difficult aspects in the treatment	Content of treatment (<i>n</i> =1), organizing the treatment (<i>n</i> =1), anxious feeling toward treatment (<i>n</i> =1)	Content of treatment (<i>n</i> =1), organizing the treatment (<i>n</i> =1), anxious feeling toward treatment (<i>n</i> =1)
Homework/exercise	Experience was good if used (<i>n</i> =7)	Practical advice used, experience was good (<i>n</i> =4)
Focus fitted (IPC)	100%	
Need of extra treatment after the intervention	2	3

IPC interpersonal counseling, *BPS* brief psychosocial support

treatment attended all planned sessions during the intervention and both follow-up sessions, even though some adolescents had moved to a different city (see Fig. 1). All

IPC counselors attended all supervision sessions, except for seven sessions which were conducted by phone. Retention rates varied between the groups; four adolescents dropped

out before the fourth session in the IPC group and two adolescents dropped out before the sixth session in the BPS group. These adolescents also did not attend the follow-up sessions. Reported reasons for dropping out from IPC were: moving to another part of the city, disagreement with a parent, child welfare issues, and feeling that a few sessions were enough. Reasons for dropping out from BPS were poor alliance with the BPS counselor and lack of motivation toward the treatment.

There were some differences across the groups in the adolescents' perceptions of their treatments (Table 3). According to the content analysis, all adolescents who participated in the interview ($n=17$) described feeling well after three months of IPC or BPS treatment, except for one adolescent in the IPC group. She felt the treatment was too short for her and there was not enough time to process things. Adolescents in both treatments gave high ratings for them. All adolescents rated their collaboration with the counselor as good except for one adolescent in the IPC group who expressed ambivalence about participating in the treatment.

Adolescents in both groups reported finding several factors helpful in the treatments. Across both treatment groups, perceived favorable factors included gaining a new perspective or starting to think about things ($n=5$) and talking with somebody who understands ($n=8$). In the IPC group, adolescents named several things which helped them to deal with their symptoms (e.g., "I got help on how to get new friends", "I learned that everything is not my fault") and helped them to act differently in difficult situations (e.g., "I don't get angry so easily", "I am able to think before acting"). They also named exercises/homework assignments as helpful ("A helpful homework assignment was to talk with my parents", "Drawing a circular map of close people and

the timeline were helpful for me"). Helpful aspects reported by adolescents in the BPS group were receiving practical advice (e.g., "I got advice not to do homework before going to sleep"; "I got advice about routines at evenings") and ways of working with the adolescent problems ("I recognize my feelings better", "I know what to do if I feel depressed"). Furthermore, adolescents in the BPS group described collaboration with the counselor and feeling understood ("The relationship became more and more trusting over time, and it was easier to talk" or "It was the first time I had the courage to ask and get help" or "I was asked about my feelings several times").

Only three adolescents from both groups reported difficulties during treatment. One adolescent from each group reported difficulties related to attending the IPC and BPS (BPS: "Sometimes it was difficult to find time to meet the counselor"; IPC: "The treatment was too short"). One adolescent from each group reported difficulties regarding the content of the treatment (BPS: "The questions were difficult from time to time"; IPC: "Filling in questionnaires was not for me"). One adolescent from each group reported anxious feelings toward treatment situations (BPS: "It was difficult to concentrate, I felt difficult to be in treatment situations and I would not want to be there and it felt like it did not help, even if it really helped"; IPC: "Maybe certain things which we were talking about began to stress me, because I did things I do not like to talk about and they began to stick in my mind producing anxiety").

The SWs' evaluation of the implementation process was similar in the IPC and BPS groups (see Table 4). SWs in both groups were satisfied with the process. BPS counselors rated the measures' usefulness and intention to use them in the future and the fluent flow of the treatment process more

Table 4 IPC and BPS counselors' evaluation of the implementation process

Question, scale 1–4	IPC $n=16$	BPS $n=13$
The treatment (IPC or BPS) was easily combined with my routine work at SHWS	3.1	3.2
The measures were useful; I am going to use them again in future	3.1	3.5
It was pleasant for me to take part in the process	3.7	3.3
The treatment process was useful for adolescent	3.4	3.5
It was easy to find a suitable adolescent for the study	2.5	2.6
The treatment flowed naturally	2.9	3.3
I am going to use the method (IPC/BPS) in future	3.4	3.2
I would have hoped to get supervision during the BPS process		1.9
I was happy with the content of IPC supervision	3.0	
I was satisfied with the amount of IPC supervision	3.4	
I was satisfied with the IPC training	3.1	
After IPC training, I felt capable of delivering IPC	3.2	

IPC interpersonal counseling, BPS brief psychosocial support, SHWS student health and welfare service; scale: 1=I disagree, 2=I partly disagree, 3=I partly agree, 4=I agree

positively than IPC counselors. In contrast, counselors in the IPC group rated the treatment process and their intention to use the method in the future more positively than did BPS counselors.

Discussion

The present study addresses the critical issue of implementing evidence-based interventions in community settings. We implemented a brief evidence-based treatment, IPC, in a real-world treatment setting for 12–16-year-olds who self-referred or were referred for help from school-based services. IPC and the comparison treatment, BPS, were provided by SWs who received applied training in IPC or who were instructed to use their routine clinical methods enhanced by the systematic and repeated use of measures assessing depressive symptoms, general functioning, and psychological distress.

The results show that a brief, active treatment, either IPC or BPS, is effective in reducing symptoms of mild-to-moderate depression and increasing adolescents' functioning and psychological well-being. This finding is consistent with results from previous studies conducted in school environments indicating that IPT-A and its adaptations (La Greca et al., 2016; Mufson et al., 2004b; Tang et al., 2009; Young et al., 2006a, b, 2010) are effective in treating adolescent depression or depressive symptoms. In the present study, the control treatment, BPS, targeted depressive symptoms. The SWs providing BPS were instructed to use their existing professional skills to help student cope with the symptoms of depression. BPS also included weekly monitoring of depressive symptoms, psychological distress, and functioning, whereas in some previous studies the control treatment resembled normal school counseling, including only pre- and post-assessments (e.g., Young et al., 2010, 2006a).

Effectiveness

Our findings that 52% and 72% of the adolescents in the IPC group and 67% and 86% in the BPS group achieved recovery at the end of treatment on the BDI and ADRS, respectively, compare well with the results of the school-based IPT-A study by Mufson et al. (2004b). In that study, 74% of the adolescents in 12-session IPT-A and 52% in TAU met the recovery criterion on the BDI at post-treatment. Given the shorter duration of IPC relative to IPT-A, our results suggest that even time-limited treatments can be effective as an early intervention for adolescent depression when delivered by an existing workforce (Mufson et al., 2015; Wilkinson et al., 2018).

In prior studies, the clinicians providing depression interventions in school settings have mostly been mental health professionals or researchers (Arora et al., 2019), whereas in our study both IPC and the BPS were provided by SWs from school-based services who besides school psychologist were not mental health professionals. This design allowed us to assess the effectiveness of both treatments in adolescents' natural surroundings and to gain information on the feasibility of the interventions when delivered by multi-professional SWs as part of their routine work.

A significant finding is that treatment gains achieved following intervention delivered by professionals in a naturalistic setting were maintained over the six months post-treatment. This is consistent with the Weisz et al. (2013) meta-analysis, which showed that the benefits of longer evidence-based youth psychotherapies for a range of disorders have been maintained 6 months post-treatment in a number of trials. In the present trial, the symptom reductions at the six-month follow-up were not just maintained, but were even greater than those observed at the end of treatment. Most of the IPT-A studies have not presented follow-up analyses up to 6 months post-treatment (Mufson et al., 2004b, 2015; Tang et al., 2009; Young et al., 2006b). Overall, our follow-up results are especially encouraging and demonstrate that brief and active early interventions, such as IPC and structured psychosocial support, can maintain their effects post-treatment. Nonetheless, studies with larger samples and longer follow-ups are needed (e.g., Goodyer et al., 2017) to further support the use of these brief treatments.

In terms of the clinical significance of our findings, the observed medium pre–post-effect sizes for IPC ($d=0.59–0.73$) are lower than the high pre–post-effect size of 1.23 reported in a meta-analysis of psychosocial treatments for youth depression (Michael & Crowley, 2002), but fall in the range of effect sizes ($d=0.30–2.27$) they reported. In the present study, all participants had a diagnosed depressive disorder instead of only elevated depressive symptoms at baseline. Furthermore, our study was an effectiveness study conducted in a real-world school setting, and we assessed outcomes following SWs' initial use of a new intervention after a short training period. These factors may help to explain the lower effect sizes obtained in this study.

The clinical outcomes were good in both treatment groups, with no statistically significant differences between IPC and BPS on measures of depressive symptoms, psychosocial functioning, and psychological distress at the end of treatment or at the 3- or 6-month follow-ups. This finding is consistent with the study by Kerfoot et al. (2004) who reported no differences between CBT and treatment as usual in treating adolescent depression in a community setting. Similarly, Goodyer et al. (2017) found no difference at 12-month follow-up in the level of depressive symptoms

between cognitive behavioral therapy, short-term psychoanalytical therapy, and brief psychosocial intervention in specialized healthcare services. Meta-analyses by Weisz et al. (2006, 2017) report less benefit from psychotherapy in studies comparing evidence-based treatments with active comparison treatments than in studies with passive control conditions. Thus, using an active control condition may have had an impact on our findings of no difference in effectiveness between IPC and BPS.

In the present study, the analyses included the very first IPC treatments the SWs provided after their training. Hence, our results represent the effect of this treatment in the “practice phase.” Although the SWs were given systematic and regular method-specific supervision, it is likely that their competence in providing IPC would have increased after a greater number of supervised, completed cases (Owen, Wampold, Kopta, Rousmaniere, & Miller, 2016). Although the IPC counselors adherence to clinical principles of IPC were relatively good, except for the use of communication analysis, role-playing, and decision analysis, further experience might have had a more positive effect on the results. The relatively low use of the three IPC-specific techniques raises the possibility that IPC was not fully implemented. It may be that IPC counselors need more training in the IPC in order to use IPC techniques effectively. Similarly, in a previous study, the novelty of treatment-specific components influenced school counselors’ ability to implement a CBT-based program (Masia Warner, Brice, Esseling, Steward, Mufson, & Hertzog, 2013). This might be a possible reason for not obtaining differences between the IPC and BPS.

Our decision to compare IPC with BPS, instead of more naturalistic “treatment as usual,” also may have affected the findings. Routine support and treatment in Finnish school-based services are not normally as intensive as BPS. Our findings suggest that a supportive intervention with targeted frequent sessions, which include repeated assessment of depressive symptoms, may be sufficient for reducing depression in youth. The feedback information may be one possible reason for adolescents’ improvements in both groups (see Bickman et al., 2011; Boswell et al., 2013; Hawkins, Lambert, Vermeersch, Slade & Tuttle, 2004). There is evidence that the feedback that adolescents themselves receive is important for their well-being (Hawkins, et al., 2004). We believe that the process of conducting symptom assessments and repeated monitoring of change may have been even more beneficial to SWs who worked without a single, defined treatment model (i.e., those providing BPS) than for those who used a structured treatment model such as IPC.

There was a trend for adolescents randomized to IPC to report more symptoms at baseline than adolescents randomized to BPS. Specifically, at baseline, the proportion of IPC adolescents with comorbid anxiety disorders was significantly higher and, although not statistically significantly,

the proportion of IPC participants with moderate depression was three times higher in the IPC group than in the BPS group. In addition, the depression symptoms scores at baseline suggested more severe depressive symptoms in the IPC group versus the BPS group. Although these group differences were evident at baseline, they were not evident at treatment termination. In similar studies, those with more severe depression (Mufson et al., 2004b; Tang et al., 2009) or with a comorbid anxiety disorder (Young et al., 2006b) gained more from IPT-A in comparison with a control treatment. Thus, our findings suggest that IPC may be effective even if moderate depression or comorbid anxiety exists.

Feasibility, Acceptability, and Fidelity

In terms of treatment feasibility, both IPC and BPS were feasible for adolescents, the majority of whom (89%) were willing to attend all treatment and follow-up sessions. This attendance rate is comparable to previous studies on IPT-A conducted in school settings reporting attendance rates from 89 to 93% (Mufson et al., 2004b; Young et al., 2010). Reasons for dropping out from IPC were predominantly unrelated to treatment. In addition, SWs reported that treatment delivery was smooth in both groups, although this was even more evident in the BPS group. This difference may reflect the fact that IPC was a completely new and unfamiliar method to SWs and consequently was likely to require extra effort.

The acceptability of IPC and BPS was good for adolescents as all but one was satisfied with the treatment and reported feeling well three months after the treatment. Adolescents reported that the treatment helped in multiple ways, although five individuals felt that they still needed treatment. Therefore, six sessions may not be sufficient for everyone. In addition, the treatments seemed to be acceptable for SWs as well, as SWs in both groups felt that the treatment did help the adolescents. The IPC counselors valued the IPC method and credited their success to the supervision they received. Supervision seemed to have had a great impact on the entire IPC process. Prior studies of supervision during psychotherapy training indicate that supervision fosters counselors’ perceived self-efficacy in delivering therapy (e.g., Cashwell & Dooley, 2001), as well as enhancing counselors’ ability to attain key psychotherapeutic skills (Ögren & Jonsson, 2004). In addition, BPS counselors also highly valued the addition of repeated measures to their routine methods that they planned to implement again in future. This may reflect the importance of structure and feedback that repeated use of measures provided.

The fidelity of implementation was good, the IPC counselors’ adherence to clinical principles of IPC method improved during every session; only the novel, skills-based techniques used in IPC did not improve at the same level

as the other competencies. This suggests that IPC implementation requires more repetition and familiarity with the IPC process. Future studies involving IPC treatments should ensure that IPC counselors more fully utilize the key IPC techniques by monitoring and addressing their use in supervision during the course of treatment. Nevertheless, the SWs' adherence to using the IPC method was relatively good in this study, suggesting that IPC can be successfully delivered in school-based services.

Our results demonstrate that IPC can be learned and delivered by social workers and nurses who have little previous specific training in mental health issues or treatment of youth depression, as well as by psychologists who already have relevant training. The brief treatment seems to fit well in school-based services, as reflected by the good treatment retention, by the qualitative analysis of a subsample of adolescents, and by the structured questionnaire for the SWs about the feasibility and acceptability of IPC and BPS.

Strengths and Limitations

A clear strength of the study is that both treatments were delivered in a community setting—in a public school-based setting. Use of these services bears no cost to the families and is potentially less stigmatizing than clinic-based services. Furthermore, these services are easily accessible for adolescents and involve shorter delays to receiving treatment relative to those in specialized services. All adolescents attending public secondary schools had equal access to school-based services, and thus, the treatment sample was not skewed with respect to socioeconomic factors. Furthermore, the SWs trained in IPC were professionals working in these services and were able to deliver an effective, structured, and evidence-based intervention with minimal training and regular supervision, thereby expanding service provision for adolescents with potentially damaging mental health difficulties. These issues strengthen the external validity of the findings and suggest the generalizability of this effectiveness study to similar treatment settings.

Due to the relatively small study sample, caution is needed when interpreting the results. The sample may be biased toward inclusion of depressed youth who were motivated to engage in treatment. As the participants were 12–16-year-olds, the results may not generalize to older adolescents. Although dropping out from treatment was uncommon, adolescents' refusal to participate in the study before the baseline assessment or SWs' uncertainty about administering the screening procedures may have been issues. It is possible that youth with greater comorbidity or more problematic alcohol use refused to participate due to the assessment burden. Unfortunately, we were not able to definitively assess the numbers and rate of pre-assessment refusal. At

present, Finnish adolescents may self-refer to school-based services without parental knowledge. Such privacy, which many adolescents wish to retain, was not possible in a clinical trial and could have influenced adolescents' willingness to participate. Anecdotal comments from the SWs suggested that adolescents' unwillingness to obtain parental consent was a frequent reason for not participating.

Methodological limitations to the study further include not masking the clinician assessments during treatment and follow-ups, which may have inflated the effects in the direction of the desired outcome. However, changes in these assessments were clearly in the same direction and of comparable magnitude as the self-report measures. A second methodological limitation is that clinicians conducting the K-SADS-5 interviews were not blinded to treatment condition. Third, the qualitative analyses included only a subgroup of adolescent participants. Thus, these results may not capture all adolescents' perceptions of the treatments and associated changes. Fourth, instead of videotaped live sessions, IPC counselors' adherence to the key IPC principles was evaluated by the supervisors based on the IPC counselors' verbal reports during supervision sessions. Therefore, the possibility for biased or inaccurate reporting cannot be ruled out.

Implications

In conclusion, both IPC and BPS were found to be feasible, acceptable, and effective interventions for treating adolescents' mild-to-moderate depression in the school setting. School-based health and welfare services seem to be an appropriate context to arrange short-term psychosocial treatments for adolescent depression. Short and focused interventions, which include systematic and repeated symptom monitoring, such as IPC and BPS, appear effective for decreasing adolescents' depressive symptoms. Our feasibility and acceptability results indicate that such interventions can be delivered by professionals from school-based services and that they are acceptable to both intervention providers and adolescent clients. A practical implication is that our findings show promise for improving the early intervention of adolescent depression, as school-based services are ideal for reaching adolescents in their everyday lives and thus are of substantial public health importance. Factors predicting or moderating the effect of IPC need to be examined further, as IPC seemed to be effective even if the adolescents had moderate depression and comorbid anxiety disorders. As this study is the first randomized controlled trial of IPC in treating adolescent depression, further studies of IPC in the school context with active treatment comparisons and with larger samples are needed. Finally, our findings indicate that short and structured interventions, such as IPC and BPS,

delivered by professionals from school-based services are effective in treating mild-to-moderate depression in school settings and yield results that can be maintained 6 months after the intervention.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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Title: Interpersonal Counseling in the Treatment of Adolescent Depression: A Randomized Controlled Effectiveness and Feasibility Study in School Health and Welfare Services

Journal: School Mental Health

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Outcome measures comparing pre-post treatment and 3 and 6 months follow-ups in both IPC and BPS groups

Parameter	Baseline		End		3-month follow-up			6-month follow-up											
	<i>n</i>	<i>Mean</i>	<i>sd</i>	<i>n</i>	<i>Mean</i>	<i>sd</i>	<i>d</i>	<i>n</i>	<i>Mean</i>	<i>sd</i>	<i>d</i>								
IPC	BDI	33	18.97	9.28	29	11.83	10.15	-7.14	0.73	28	12.61	12.51	0.78	0.58	28	9.07	9.70	-3.09	1.04
	ADRS _c	32	17.94	8.06	29	11.48	9.53	-6.45	0.73	29	11.34	8.75	-0.14	0.78	29	8.28	8.05	-3.07	1.20
	YP-CORE	33	16.30	5.43	33	10.91	8.88	-5.39	0.73	29	10.62	8.52	-0.29	0.80	29	8.24	7.07	-2.38	1.28
	C-GAS	32	66.53	9.75	29	73.07	12.39	6.54	0.59	29	75.03	11.98	1.97	0.78	29	77.38	9.29	2.34	1.13
BPS	BDI	22	15.23	8.60	21	8.76	6.93	-6.47	0.75	20	9.25	9.27	0.49	0.67	20	5.45	5.74	-3.80	1.34
	ADRS _c	22	13.95	6.86	22	6.82	4.96	-7.14	1.19	20	10.00	8.47	3.18	0.51	20	6.55	5.32	-3.45	1.21
	YP-CORE	22	14.95	5.72	22	6.82	4.90	-8.14	1.53	20	9.05	7.00	2.23	0.92	20	7.10	5.83	-1.95	1.36
	C-GAS	22	66.64	10.32	22	76.59	10.13	9.95	0.97	20	74.75	6.76	-1.84	0.93	20	79.50	9.37	4.75	1.31

Note: IPC = Interpersonal Counselling, BPS = Brief Psychosocial Support, BDI=Beck Depression Inventory, ADRSc=Adolescent Depression Rating Scale, YP-CORE = Young Person's Clinical Outcomes in Routine Evaluation, MFU=3- / 6-month follow-up, *d* = Cohen *d* values.

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A list of assessed therapeutic components of IPC

Basic IPC Competencies, Scale 1-5		1. Session	4. Session	6. Session
		<i>n = 24</i>	<i>n = 22</i>	<i>n = 20</i>
1.	Knowledge of basic principles and rationale for IPC	3.05	3.41	3.38
2.	Knowledge of depression	3.17	3.41	3.61
3.	Ability to implement IPC in a manner consonant with its supportive and active stance	3.26	3.64	3.72
4.	Ability to assess suitability for IPC	3.09	3.55	3.61
5.	Ability to engage the client in IPC	3.30	3.68	3.76
6.	Ability to reframe the client's presenting problems as an illness	2.90	3.20	3.37
7.	Ability to identify an interpersonal problem area that will provide the focus for the middle phase of therapy	2.83	3.27	3.42
8.	Ability to maintain a focus on an IPC interpersonal problem area linked with the onset and/or maintenance of symptoms	2.72	3.18	3.44
9.	Ability to identify and explore difficulties in communication	3.06	3.26	3.40
10.	Ability to facilitate the expression and acceptance of a range of emotions	3.15	3.55	3.61
11.	Ability to encourage interpersonal change in between sessions	3.11	3.50	3.53
12.	Ability to engage the client in preparation for ending	3.15	3.45	3.61
13.	Ability to use questionnaire measures to guide therapy and to monitor outcomes	3.17	3.64	3.82
Specific Techniques Ability to make selective use of specific techniques to support the strategies and goals of the focus area:				
14.	Ability to use clarification, summaries and questions	3.05	3.52	3.50
15.	Ability to use communication analysis	2.78	2.86	2.91
16.	Ability to use decision analysis	1.86	2.83	2.70

17.	Ability to use role-playing	1.25	2.33	2.00
Overarching Competencies / IPC-Specific Competencies				
18.	Ability to adapt the core IPC strategies to the client's individual needs and the time available	2.88	3.36	3.41
19.	Ability to balance being focused and maintaining the therapeutic alliance	2.89	3.32	3.65
20.	Ability to establish an appropriate balance between counselor activity and non-directive exploration	3.00	3.45	3.76

Note: 0 = skill/technique was not used/was not relevant at this point, 1 = skill/technique was not mastered at all, 2 = skill/technique was mastered to a small amount, 3 = skill/technique was mastered relatively well, 4 = skill/technique was mastered well.