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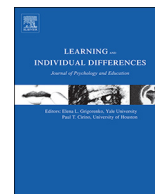
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Symptoms of psychological ill-being and school dropout intentions among upper secondary education students: A person-centered approach[☆]



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ABSTRACT

A person-centered approach was used to identify the profiles of symptoms of psychological ill-being among Finnish upper secondary education students ($N = 2889$); to examine whether gender and educational track (i.e., academic or vocational) are associated with these profiles; and to investigate the role of profiles in school dropout intentions. Using latent profile analysis, one asymptomatic profile (normative, 79.2%) and three symptomatic profiles (internalizing symptoms, 9.1%; externalizing symptoms, 9.1%; and comorbid symptoms, 2.6%) were identified. Boys in the vocational track were overrepresented in the externalizing-symptoms profile, whereas girls in both tracks were overrepresented in the internalizing-symptoms profile. Students in the three symptomatic profiles showed higher dropout intentions than those in the normative profile. Altogether, this study indicated that up to every fifth student experiences symptoms of psychological ill-being, and those exhibiting these symptoms might be at greater risk of dropping out of school than their peers.

1. Introduction

Adolescents' psychological ill-being, manifested in negative subjective experiences and symptoms, is a major concern worldwide. It has been estimated that approximately one in every ten adolescents is identified with a diagnosable mental disorder, and an even higher number of adolescents report symptoms of psychological ill-being (Lewinsohn, Shankman, Gau, & Klein, 2004; Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Although quite a substantial body of literature on adolescents' psychological ill-being exists (e.g., Graber & Sontag, 2009), few studies have applied a person-centered approach instead of a variable-centered approach when examining the symptoms of psychological ill-being. The goal of a person-centered approach is to identify subgroups of adolescents indicating various combinations of symptoms. Such identifications are required for the development of targeted prevention and support strategies for at-risk students. Thus, the aim of the present study was to identify distinct profiles of symptoms of psychological ill-being among Finnish upper secondary education students. Additionally, the present study investigated whether gender and educational track (i.e., academic and vocational) were associated with these profiles and whether the students identified in the various profiles differed with respect to school dropout intentions. Although previous studies have associated psychological ill-being with an

increased risk of dropping out of school (Bask & Salmela-Aro, 2013; Breslau, Lane, Sampson, & Kessler, 2008; Esch et al., 2014), little is known about how various symptoms jointly contribute to the development of the path that leads to dropping out. Strong evidence of the negative consequences of dropping out for both individuals and society (Rumberger, 2011) points to the importance of acquiring information on how certain combinations of symptoms are linked to an increased dropout risk.

1.1. Students' symptoms of psychological ill-being

Several terms, such as psychiatric symptom, mental disorder or illness, and psychological distress have been used to describe individuals' poor psychological well-being. In the present study, the term *symptoms of psychological ill-being* will be used, because several symptoms, rather than diagnosable disorders, were examined in a nonclinical sample of students. Typically, a division has been made between internalizing and externalizing expressions or types of dysfunction (Cicchetti & Toth, 1991). Internalizing symptoms represent over-controlled and inner-directed emotions, such as anxiety, worry, and sorrow (Hinshaw, 1992; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). In the present study, depressive symptoms represent the internalizing type of dysfunction. More specifically, depressive symptoms refer to a wide range of

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symptoms, such as the lowering of mood, feelings of worthlessness, loss of interest, decreased energy, and sleep disturbance (World Health Organization, 1992). Externalizing symptoms, in contrast, are typically manifested as under-controlled and outward-directed disruptive behaviors, such as aggression and defiance (Hinshaw, 1992). In the present study, conduct problems represent the externalizing type of dysfunction and refer to behavioral problems, such as disobedience, temper tantrums, lying, fighting, and stealing (Goodman, 1997).

Depressive symptoms and conduct problems manifest themselves in several life domains and, thus, contribute substantially to students' overall well-being. However, as school is one of the most important developmental contexts during adolescence (Eccles & Roeser, 2011), students' symptoms manifested specifically in the school context were of interest, along with the symptoms prevailing across contexts (i.e., context-free or general symptoms). Although there are no universally accepted ways to conceptualize symptoms of psychological ill-being that are specific to school context, school burnout is one of the most prominent indicators that have been used to describe students' school-related symptoms and maladjustment (e.g., Kiuru, Aunola, Nurmi, Leskinen, & Salmela-Aro, 2008; May, Bauer, & Fincham, 2015; Virtanen, Vasalampi, Torppa, Lerkkanen, & Nurmi, 2019; Widlund, Tuominen, & Korhonen, 2018). School burnout comprises three separate dimensions: exhaustion (i.e., strain and chronic fatigue caused by school demands), cynicism (i.e., loss of interest in schoolwork and detached attitude toward studies), and inadequacy (i.e., school-related feelings of incompetence) (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009; Schaufeli, Martínez, Marques-Pinto, Salanova, & Bakker, 2002). The dimensions capture different aspects of burnout syndrome, and it has been suggested that exhaustion and cynicism serve as initial predictors of feelings of inadequacy (Parker & Salmela-Aro, 2011). Thus, in the present study, exhaustion and cynicism were examined. While exhaustion is akin to stress, cynicism refers to an indifferent attitude that cognitively distances individual from an overtaxing situation (Maslach, Schaufeli, & Leiter, 2001).

1.2. Person-centered studies on the symptoms of psychological ill-being

The multifaceted nature of adolescents' psychological ill-being has been widely demonstrated, as various symptoms have been found to coincide. For example, there is strong evidence of the comorbidity between conduct problems and depression (Angold & Costello, 1993; Wolff & Ollendick, 2006). Similarly, symptoms of school burnout have consistently been shown to correlate positively with depressive symptoms (Fiorilli, De Stasio, Di Chiacchio, Pepe, & Salmela-Aro, 2017; Salmela-Aro, Savolainen, & Holopainen, 2009). Most often, the connections between symptoms have been examined using a variable-centered approach, which assumes that associations are similar across the entire study population (Howard & Hoffman, 2018). However, populations are not typically homogeneous, and a person-centered approach takes into account this heterogeneity within the study population. The use of a person-centered methodology is predicated on the assumption that connections between variables differ among individuals; thus, the aim is to identify various subgroups (e.g., profiles or classes) of individuals who show similar associations between the specific variables and who are alike within the group but differ from the members of other groups (Bergman & Magnusson, 1997; Laursen & Hoff, 2006). As a person-centered approach detects distinct patterns of associations between symptoms, it provides multifaceted information about symptomology.

Previous person-centered studies have provided some knowledge about students' symptoms of psychological ill-being. First, prior studies have mainly shown that the majority of students belong to subgroups that are characterized by low levels of symptoms (e.g., Parhiala et al., 2018; Tetzner, Kliegl, Krahé, Busching, & Esser, 2017). Second, symptomatic individuals show variability in psychological ill-being, as distinct subgroups can be identified among them (see Petersen, Qualter, &

Humphrey, 2019). McElroy, Shevlin, and Murphy (2017) examined several internalizing and externalizing disorders among 14-year-old adolescents ($N = 7106$) and found four distinct classes. The adolescents in the largest class—labeled *low endorsement/normative* (80.2%)—did not indicate disorders, whereas the adolescents in the *internalizing* (13.9%), *externalizing* (4.4%), and *high risk/multimorbid* (1.4%) classes indicated either internalizing disorders, externalizing disorders, or both types, respectively. Their finding is in line with those of other studies that have identified a large asymptomatic group, together with distinct symptomatic groups that are characterized by either internalizing or externalizing symptoms or comorbid symptoms (Basten et al., 2013; Bianchi et al., 2017; Olino, Klein, Farmer, Seeley, & Lewinsohn, 2012; Vaidyanathan, Patrick, & Iacono, 2011).

Although previous research has shed light on the patterns of psychological ill-being, few person-centered studies have taken school context-specific symptoms into account. The few existing person-centered studies conducted in Finland, however, suggest that school-related symptoms are closely linked to general internalizing and externalizing symptoms. Virtanen et al. (2019) examined students' psychological well-being during the transition from primary to lower secondary school ($N = 1666$) and found that students (18% of the sample) who showed relatively high levels of internalizing and/or externalizing symptoms tend to experience concurrent symptoms of overall school burnout. Similarly, Parhiala et al. (2018) identified ninth graders (12% of the sample, $N = 1629$) who belonged to profile groups characterized by relatively high levels of externalizing and internalizing symptoms together with increased symptoms of overall school burnout. Additionally, a few studies have utilized a person-centered approach to investigate how different dimensions of school burnout (i.e., exhaustion, cynicism, and inadequacy) coincide (Salmela-Aro, Muotka, Alho, Hakkarainen, & Lonka, 2016; Tuominen-Soini & Salmela-Aro, 2014; Widlund et al., 2018). These studies have shown that although all three burnout symptoms are clustered among some students, profiles in which cynicism is the dominant or only elevated symptom can also be identified alongside profiles with relatively high levels of exhaustion and inadequacy without cynicism.

A clear limitation of the previous person-centered studies conducted in the school context is that besides symptom measures, other constructs, such as motivation, school engagement, academic performance, and educational aspirations, have been included in the profile analyses (e.g., Parhiala et al., 2018; Tetzner et al., 2017; Tuominen-Soini & Salmela-Aro, 2014; Virtanen et al., 2019; Widlund et al., 2018). This inevitably affects the formation of the profiles. Furthermore, prior person-centered studies have not examined how separate dimensions of school burnout are linked to internalizing and externalizing symptoms. Due to these limitations, the starting point of the present study was to focus specifically on the symptoms of psychological ill-being and to combine exhaustion and cynicism with depressive symptoms and conduct problems.

1.3. The roles of gender and educational track in symptoms of psychological ill-being

Gender differences in internalizing and externalizing symptoms are well documented (Seedat et al., 2009). Girls have been shown to report higher levels of depressive symptoms than boys, and conduct problems have, in turn, been found to be more common among boys (Lahey et al., 2000; Wade, Cairney, & Pevalin, 2002). Regarding symptoms of psychological ill-being in the school context, the literature indicates that exhaustion due to school demands is higher among girls than boys (Herrmann, Koeppen, & Kessels, 2019; Salmela-Aro, Kiuru, & Nurmi, 2008; Walburg, Moncla, & Mialhes, 2015), whereas a cynical attitude toward studies has sometimes been considered to be boys' way to express ill-being at school (Salmela-Aro & Tynkkynen, 2012). However, some comparisons between girls and boys have found the symptoms of cynicism to be equally high (Cadime et al., 2016; Herrmann et al.,

2019) or even higher among girls (Salmela-Aro et al., 2008).

The role of gender is typically considered when studying students' symptoms of psychological ill-being, but the role of the educational track is examined to a much less extent, although the transition to upper secondary education is a major educational change. According to recent statistics (Official Statistics of Finland, 2017b), 53.0% of Finnish students who completed comprehensive school continued their studies in the academic track with a focus on general theory-based studies and preparation for higher education, while 41.3% pursued the vocational track, which provides a vocational qualification for working life. These two tracks have major qualitative differences in the content of instruction and educational organization, raising the question of whether these environmental differences have an impact on students' symptoms.

Thus far, only a few previous studies have involved a design that allows for a comparative analysis of educational tracks in relation to students' symptoms of psychological ill-being. Prior studies suggest that students in the academic track, where the demands for school achievement are relatively high, are more prone to school burnout than their peers in the vocational track (Salmela-Aro et al., 2008; Salmela-Aro & Tynkkynen, 2012). In contrast, vocational-track students have been documented to report more psychosomatic complaints and to engage more frequently in health-damaging behaviors than their counterparts in the academic track (Hagquist, 2007). Additionally, it has been shown that students who entered the vocational track had higher levels of externalizing problems at the end of their years at comprehensive school than students in the academic track (Hakkarainen, Holopainen, & Savolainen, 2016). The combined effect of educational track and gender has been considered only in a few previous studies. Salmela-Aro and Tynkkynen (2012) found that during the transition to upper secondary education, exhaustion and cynicism increased only among academic-track boys and that cynicism decreased among vocational-track girls. Korhonen, Remes, and Martikainen (2017), in turn, demonstrated that particularly girls in the vocational track had an increased risk for depression. However, we still lack knowledge regarding whether there is educational-track specificity in the profiles of symptoms of psychological ill-being, as previous person-centered analyses have been carried out on academic-track students only (e.g., Tuominen-Soini & Salmela-Aro, 2014).

1.4. Symptoms of psychological ill-being and dropping out of school

Symptoms of psychological ill-being may negatively impact students' school functioning in multiple ways. It has been shown that students' symptoms are associated with various school-related problems, such as low schoolwork engagement, poor academic achievement, and truancy (Egger, Costello, & Angold, 2003; Fröjd et al., 2008; Salmela-Aro & Upadaya, 2014). Psychological ill-being is also linked to dropping out of school (Esch et al., 2014; Kessler, Foster, Saunders, & Stang, 1995), which may, in turn, place an individual at a disadvantage later in life (Lansford, Dodge, Pettit, & Bates, 2016; Rumberger, 2011). Dropping out of school has been defined as quitting studies prior to graduation without receiving an upper secondary education certificate (De Witte, Cabus, Thyssen, Groot, & Maassen van den Brink, 2013). Recent statistics (Eurostat, 2019) indicate that the proportion of 18- to 24-year-olds whose highest level of completed education was lower secondary school and who were not participating in any further education or training was 8.3% in Finland and 10.6% in the European Union. In Finland, dropping out of school is a concern, especially in the vocational track, for which the annual dropout rate is almost five times greater than for the academic track (6.7% versus 1.6%) (Official Statistics of Finland, 2017a).

Dropping out of school is considered the final stage of a long-term process (for review, see Rumberger & Rotermund, 2012), and prior to quitting, students are likely to develop intentions to drop out (Alivernini & Lucidi, 2011; Hardre & Reeve, 2003; Vasalampi, Kiuru, & Salmela-Aro, 2018). Previous studies have clearly demonstrated that

before making the decision to terminate their studies, students who eventually dropped out had thought more about quitting school compared to their peers who remained in school (e.g., Eicher, Staerklé, & Clémence, 2014; Frostad, Pijl, & Mjaavatt, 2015; Vallerand, Fortier, & Guay, 1997). Although school dropout intentions do not necessarily lead to the actual termination of studies, they constitute a clear sign of disengagement and an increased risk of dropping out. In the present study, the focus was on students' school dropout intentions (i.e., self-reported deliberation of changing or quitting the current study program), rather than actual dropouts, as the students had just started their upper secondary education studies. Moreover, focus on the early stage of the path leading to dropping out is warranted, because the identification of dropout risk is critical for developing preventive actions before students actually decide to drop out.

Although, no single factor can be pinpointed as the main cause of dropping out of school (De Witte et al., 2013; Rumberger, 1987), mental disorders are acknowledged as notable contributory factors (Breslau et al., 2008; Kessler et al., 1995; Mikkonen, Moustgaard, Remes, & Martikainen, 2018). A wide range of externalizing and internalizing symptoms and disorders, among them conduct problems and depressive symptoms, have been linked to dropout intentions and dropping out (Breslau, Miller, Chung, & Schweitzer, 2011; Dupéré et al., 2018; Esch et al., 2014; Garvik, Idsoe, & Bru, 2014; Quiroga, Janosz, Bisset, & Morin, 2013; Sagatun, Heyerdahl, Wentzel-Larsen, & Lien, 2014). Evidence of the association between depressive symptoms and dropping out is, however, inconsistent, because some studies indicate that after controlling for other risk factors or comorbid problems, depressive symptoms no longer predict dropping out (Breslau et al., 2011; Brière et al., 2017; Melkevik, Nilsen, Evensen, Reneflot, & Mykletun, 2016). Although dropping out of school is an internationally acknowledged concern, surprisingly little is known about how school-related stress and burnout are linked to this process. It has been reported that high levels of cynicism are likely to increase dropout risk, whereas high levels of exhaustion are not (Bask & Salmela-Aro, 2013). Conversely, Eicher et al. (2014) found that educational stress, which is a concept that is similar to school-related exhaustion, increased students' dropout intentions.

Person-centered studies examining the links between the symptoms of psychological ill-being and dropping out are still rare; however, they provide strong potential for understanding the unique combination of symptoms that contribute to the process of dropping out. Orpinas, Raczynski, Peters, Colman, and Bandalos (2015) utilized teacher ratings of students' assets and maladaptive behaviors (i.e., adaptive skills, externalizing and internalizing problems, and school problems) to identify latent profiles among sixth graders. They found that the high school dropout rate was particularly high in the profiles characterized by the most severe problems but that students with less severe problems were also found to drop out of school. This finding supports the view that individuals who are at risk of dropping out do not have an identical profile of symptoms and strengths, and individuals may show different profiles with similar consequences (Janosz, Le Blanc, Boulerice, & Tremblay, 2000).

1.5. The present study

In the present study, the following research questions were addressed:

- 1) What kinds of profile groups can be identified among the upper secondary education students based on the indicators of the symptoms of psychological ill-being? Based on the previous person-centered studies conducted among students of comprehensive school and upper secondary education (Parhiala et al., 2018; Tetzner et al., 2017; Tuominen-Soini & Salmela-Aro, 2014; Virtanen et al., 2019), we expected to find distinct profiles with respect to the symptoms of psychological ill-being. As previous studies (e.g., Parhiala et al.,

2018; Tetzner et al., 2017) have shown that the majority of students demonstrate low levels of symptoms, we expected to find one large asymptomatic profile. Because an identical set of indicators has not been used in previous person-centered studies, we formed no prior hypothesis on the specific number of symptomatic profiles. However, as previous studies have found profiles that have been characterized by either externalizing or internalizing symptoms or comorbid symptoms (e.g., McElroy et al., 2017; Olinio et al., 2012), we hypothesized that we would discover a profile that is characterized by relatively high levels of conduct problems (i.e., externalizing type), one characterized by relatively high levels of depressive symptoms (i.e. internalizing type), and another characterized by relatively high levels of both (i.e., comorbid type). We further expected that students showing depressive symptoms and/or conduct problems would experience concurrent symptoms of exhaustion and/or cynicism, as previous studies have shown that symptoms of school burnout coincide with internalizing and externalizing symptoms (Parhiala et al., 2018; Virtanen et al., 2019).

- 2) Are gender and educational track associated with the profile groups of the symptoms of psychological ill-being? Based on the previous studies on gender differences (Lahey et al., 2000; Salmela-Aro et al., 2008; Wade et al., 2002), the profiles characterized by depressive symptoms and/or by symptoms of school burnout were hypothesized to be more typical for girls, whereas boys were assumed to be overrepresented in the profiles characterized by conduct problems. We further hypothesized that students in the vocational track would be overrepresented in the profiles characterized by conduct problems, whereas the profiles characterized by symptoms of school burnout were, in turn, hypothesized to be more typical for those in the academic track (Hakkarainen et al., 2016; Salmela-Aro & Tynkkynen, 2012).
- 3) How do the profile groups of the symptoms of psychological ill-being differ with respect to school dropout intentions? Previous studies have shown that symptoms of psychological ill-being are a risk factor for dropping out of school (e.g., Breslau et al., 2008; Esch et al., 2014). Consequently, we assumed that the students belonging to the symptomatic profiles would report higher levels of dropout intentions than their peers in the asymptomatic profile. Based on the previous studies, particularly students belonging to profiles characterized by conduct problems and/or by cynicism were assumed to indicate increased levels of dropout intentions (Bask & Salmela-Aro, 2013; Breslau et al., 2011). Because academic achievement and parents' educational levels have been linked to dropping out (e.g., Janosz et al., 2000; Markussen, Frøseth, & Sandberg, 2011), these variables were controlled in the analyses.

2. Methods

2.1. Context

The present study was conducted in Finland, where compulsory schooling comprises one year of pre-primary education (children start in August of the year in which they turn six years of age) and nine years of basic education (i.e., primary school [Grades 1–6] and lower secondary school [Grades 7–9]). Most youth continue their studies in post-compulsory education either at general upper secondary school (i.e., academic track) or vocational upper secondary school (i.e., vocational track). A much smaller group of youth enrolls in programs that include a double degree (i.e., vocational track but include matriculation exam from upper secondary school). Both types of upper secondary education typically take three to four years to complete. Although the academic track is the most common path to higher education (i.e., university or university of applied sciences), vocational-track students are also eligible to apply for further studies after graduation. In Finland, all comprehensive-school teachers have a university degree (i.e., completion of a master's in one's scientific field and a mandatory number of

pedagogical studies with supervised teaching practice). Schools follow the national curriculum guidelines set by the National Agency for Education and do not charge tuition fees; support for learning is offered to all students throughout their studies, and school health services are available.

2.2. Participants and procedure

The data used in the present study were drawn from the School Path: From First Steps to Secondary and Higher Education study (Vasalampi & Aunola, 2016–), which is an extension of the First Steps follow-up study (Lerikkanen et al., 2006–2016). In total, 3617 students (i.e., the original follow-up participants $n = 1652$ and their new classmates $n = 1965$) participated in the study. Students who were born in 1998 or earlier (i.e., adult students), those who were not studying in the academic or vocational track in upper secondary education, and those who answered the shortened questionnaire via telephone were excluded from the present analyses. The final data for the present study consisted of 2889 participants (boys = 46.5%), who were studying in the academic track ($n = 1627$, 56.3%) or the vocational track ($n = 1262$, 43.7%) and were born between 1999 and 2001 (age 15–18, $M = 16.72$, $SD = 0.41$).

The self-reported questionnaire data were collected during the first year of upper secondary education (January–March 2017) in four municipalities (i.e., two medium-sized, one big, and one rural) around Finland. All the participants provided informed consent to confirm their voluntary participation in the study. The students participated in the study during a normal school day, and the questionnaires were administered in the classrooms by trained researchers or teachers, who were briefed on the administration guidelines prior to the assessment. Both an internet-based questionnaire ($n = 1006$, 34.8%) and a paper questionnaire ($n = 1883$, 65.2%) were used. Students who were absent during data collection were later contacted personally and asked to fill out the questionnaire. The response rate was high, as the amount of missing data in the study variables was minimal (0.1–0.9%). Ethical statement for the follow-up study was obtained from the University of Jyväskylä Ethical Committee. The present study followed the guidelines of the National Advisory Board on Research Ethics in Finland.

2.3. Measures

2.3.1. Exhaustion and cynicism

Exhaustion and cynicism were assessed using the School Burnout Inventory (SBI; Salmela-Aro, Kiuru, et al., 2009). Two out of the three dimensions of the SBI were used in data collection (inadequacy was excluded from the study design). Exhaustion was measured using three items (e.g., “I often sleep badly because of matters related to my schoolwork”) and cynicism with three items (e.g., “I feel that I am losing interest in my schoolwork”). The items were rated on a 5-point Likert scale (1 = completely disagree; 5 = completely agree). A composite score was calculated separately as a mean of the standardized items for exhaustion and cynicism. The Cronbach's alpha reliability coefficients were 0.86 and 0.84 for exhaustion and cynicism, respectively.

2.3.2. Depressive symptoms

Depressive symptoms were assessed using the Depression Scale (DEPS; Salokangas, Poutanen, & Stengård, 1995), which consists of 10 items (e.g., “I felt blue” and “I did not enjoy my life”) measuring students' depressive moods over the course of the previous month. The items were rated using a 4-point Likert scale (1 = not at all; 4 = very much). The composite score for depressive symptoms was calculated as a mean of the standardized items. The Cronbach's alpha reliability coefficient for depressive symptoms was 0.93.

Table 1
Correlation matrix.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Cynicism	1.00								
2. Exhaustion	.42***	1.00							
3. Depressive symptoms	.45***	.51***	1.00						
4. Conduct problems	.27***	.14***	.26***	1.00					
5. Dropout intentions	.48***	.21***	.27***	.21***	1.00				
6. Gender ^a	-.03	-.31***	-.32***	.04*	-.03	1.00			
7. Educational track ^a	-.09***	-.28***	-.14***	.18***	.01	.18***	1.00		
8. Academic achievement ^b	-.03	.20***	.08**	-.22***	-.14***	-.20***	-.69***	1.00	
9. Parents' education ^b	-.00	.06*	-.01	-.10***	-.07*	.07*	-.38***	.39***	1.00

^a = Spearman's rho; gender: 1 = girls, 2 = boys; educational track: 1 = academic, 2 = vocational.

^b = subsample.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

2.3.3. Conduct problems

Conduct problems were assessed using the Finnish version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; Koskelainen, Sourander, & Kaljonen, 2000), which consists of five subscales: conduct problems, hyperactivity/inattention, emotional symptoms, peer problems, and prosocial behavior. Conduct problems over the past six months were measured using five items (e.g., "I get very angry and often lose my temper"), which were rated using a 3-point Likert scale (1 = not true, 2 = somewhat true, 3 = certainly true). Because, Cronbach's alpha reliability was relatively low (0.60) for the five items, one item ("I usually do as I am told") was excluded, and a composite score for conduct problems was calculated as a mean of four standardized items. The Cronbach's alpha reliability coefficient for the four-item scale of conduct problems was 0.68.

2.3.4. School dropout intentions

School dropout intentions were measured using two items ("Have you considered changing your school or field of study?" and "Have you considered quitting your current school or field of study?") (see also Vasalampi et al., 2018). The items were rated on a 5-point Likert scale (1 = not at all; 5 = very often). The composite score for school dropout intentions was calculated as a mean of the items. The Cronbach's alpha reliability coefficient for school dropout intentions was 0.78. In previous studies, dropout intentions have been shown to predict actual dropping out of school. For example, when examining students who dropped out of school and those who did not, Eicher et al. (2014) found that before quitting school, the former set of students had reported higher levels of dropout intentions (the dropout-intentions measure includes an item measuring intentions to change education) than the latter (see also Vallerand et al., 1997). Moreover, Vasalampi et al. (2018) showed that students' dropout intentions, measured in the same way as in the present study, were linked to unsuccessful educational transition beyond upper secondary education.

2.3.5. Students' background characteristics

Information concerning students' background characteristics was available from adolescents ($n = 980$) who had participated in the earlier phases of the follow-up study. Background variables were used as control variables. Students' academic achievement was measured using the register data of students' final grades at the end of comprehensive school (ninth grade, time 0) prior to students' entry to their upper secondary education studies. The composite score of academic achievement at the end of Grade 9 was calculated as the mean of three subjects: mathematics, English, and mother tongue (Finnish). Parents' educational level was coded based on the highest level of parental education in the family (1 = no vocational education; 7 = licentiate or doctoral degree).

2.4. Data analyses

First, the latent profile analysis (LPA) was used to identify profile groups of symptoms of psychological ill-being using the scores for exhaustion, cynicism, depressive symptoms, and conduct problems as the criteria variables. Before the LPA analysis, scores of the criteria variables were forced to the range of -3 to 3 to ensure that possible outliers would not impact the results. The LPA analysis was conducted gradually, starting from a single-group solution and adding one more group at each step. The optimal number of latent profile groups was decided based on six criteria: the Akaike information criterion (AIC), the sample-size adjusted Bayesian information criterion (aBIC), the Vuong-Lo-Mendell-Rubin test (VLMR), the Lo-Mendell-Rubin test (LMR), the average latent class posterior probabilities (AvePP), and the reliability of classification by entropy. The lower the AIC and aBIC values, the better the model. Regarding the two likelihood ratio tests (VLMR and LMR), a significant p -value ($< .05$) indicates that the estimated model provides a better fit to the data than the model with one fewer group. The AvePP and entropy values range from zero to one, and the values approaching one indicate better classifications. To validate the profile groups, the differences between the groups in the criteria variables were assessed using one-way analyses of variance (ANOVAs).

Second, the cross-tabulations and Pearson's chi-square tests were conducted to examine whether gender and educational track were associated with the profile groups. The cross-tabulations were conducted, first, for gender; then, for educational track; and, finally, for combined variable describing the interactions between these two (i.e., academic girls, academic boys, vocational girls, and vocational boys).

Finally, possible differences between the profile groups in school dropout intentions were examined using ANOVA. Additionally, gender, educational track, academic achievement, and parents' educational levels were included as covariates (ANCOVA). Mplus Version 8 (Muthén & Muthén, 1998–2017) was used to conduct LPA, whereas AN(C)OVAs, cross-tabulations, and Pearson's chi-square tests were performed using IBM SPSS Statistics 24.

3. Results

The correlation matrix is presented in Table 1. All the examined symptoms included in the LPA analysis correlated positively with each other and with school dropout intentions.

3.1. Profile groups of symptoms of psychological ill-being

The LPA was conducted to identify the profile groups of the symptoms of psychological ill-being. The criteria values and profile group sizes of one- to seven-group solutions are presented in Table 2. The VLMR and LMR tests supported the four-group solution. Furthermore,

Table 2
Comparisons of the latent profile analysis solutions.

No. profiles	AIC	aBIC	VLMR (p)	LMR (p)	Entropy	AvePP	Group sizes
1	25,528.40	25,567.48					2889
2	24,110.60	24,163.63	< .001	< .001	0.95	0.96–0.99	336/2553
3	23,308.20	23,375.19	< .001	< .001	0.94	0.93–0.98	247/2336/306
4	22,874.75	22,955.70	.027	.029	0.94	0.92–0.98	75/2288/263/263
5	22,581.14	22,676.05	.196	.202	0.92	0.86–0.97	116/2129/140/195/309
6	22,271.53	22,380.39	.001	.002	0.94	0.90–0.97	178/44/431/192/1956/88
7	22,055.38	22,178.20	.239	.248	0.92	0.85–0.97	377/147/178/1921/159/44/63

Note. AIC = Akaike information criterion, aBIC = sample-size adjusted Bayesian information criterion, VLMR = Vuong-Lo-Mendell-Rubin test, LMR = Lo-Mendell-Rubin test, AvePP = average latent class posterior probabilities.

Table 3
Means and standard deviations in the symptom variables (raw scores) and dropout intentions and statistically significant differences between the profiles.

	Full sample (N = 2889)	Normative (n = 2288)	Internalizing (n = 263)	Externalizing (n = 263)	Comorbid (n = 75)	ANOVA	η_p^2
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)		
Cynicism	1.90 (0.87)	1.75 ^a (0.77)	2.61 ^b (0.96)	2.35 ^c (0.96)	2.58 ^{bc} (1.06)	$F(3, 2881) = 138.60^{***}$	0.13
Exhaustion	2.37 (1.05)	2.25 ^a (0.99)	3.21 ^b (1.08)	2.36 ^a (1.04)	3.03 ^b (1.14)	$F(3, 2881) = 82.19^{***}$	0.08
Depressive symptoms	1.51 (0.59)	1.32 ^a (0.32)	2.79 ^b (0.46)	1.46 ^c (0.42)	2.81 ^b (0.53)	$F(3, 2870) = 1702.91^{***}$	0.64
Conduct problems	1.25 (0.35)	1.14 ^a (0.19)	1.27 ^b (0.24)	1.97 ^c (0.26)	2.13 ^d (0.30)	$F(3, 2859) = 1698.02^{***}$	0.64
Dropout intentions	1.71 (1.02)	1.58 ^a (0.92)	2.28 ^b (1.20)	2.09 ^b (1.18)	2.34 ^b (1.19)	$F(3, 2870) = 64.61^{***}$	0.06

Note. η_p^2 = partial eta squared; profile groups sharing the same superscript letters are not different ($p > .05$) based on ANOVA post hoc paired comparison (Bonferroni for exhaustion and Tamhane for other variables).

Note. Adj. std. res. = adjusted standardized residual.

*** $p < .001$.

the entropy value (0.94) and AvePP values (0.92–0.98) indicated that the four-group model provided a reliable classification. Therefore, the four-group solution was selected, although the AIC and aBIC values continued to decrease even for the seven groups. To validate the existence of the profile groups, one-way ANOVAs were conducted to investigate group differences in the criteria variables (Table 3).

The majority of the students (79.2%) belonged to an asymptomatic group that was characterized by relatively low levels of depressive symptoms, conduct problems, exhaustion, and cynicism (Fig. 1). This profile group with low levels of symptoms was labeled *normative*. In addition, three distinct symptomatic profile groups were identified among the students. The first symptomatic profile group was labeled *externalizing symptoms*, as the students (9.1%) in this group reported relatively high levels of conduct problems but relatively low levels of depressive symptoms and exhaustion. In addition, they displayed higher levels of cynicism compared to the normative group (Table 3). The second symptomatic profile group was labeled *internalizing symptoms* because the students (9.1%) in this group displayed relatively high

levels of depressive symptoms but relatively low levels of conduct problems. These students also reported higher levels of cynicism and exhaustion compared to the normative group and the externalizing-symptoms group (Table 3). The students (2.6%) in the third symptomatic profile group, labeled *comorbid symptoms*, reported relatively high levels of depressive symptoms and conduct problems. Additionally, they indicated higher levels of both exhaustion and cynicism compared to the normative group and higher levels of exhaustion compared to the externalizing-symptoms group (Table 3).

3.2. The roles of gender and educational track

The Pearson's chi-square test indicated that the association between the profiles and gender was significant ($\chi^2(3) = 112.84, p < .001$, Cramer's V = 0.20). The adjusted standardized residuals (Table 4) showed that girls were overrepresented in the internalizing-symptoms group, whereas boys were overrepresented in the externalizing-symptoms group. There were no gender differences in the normative group.

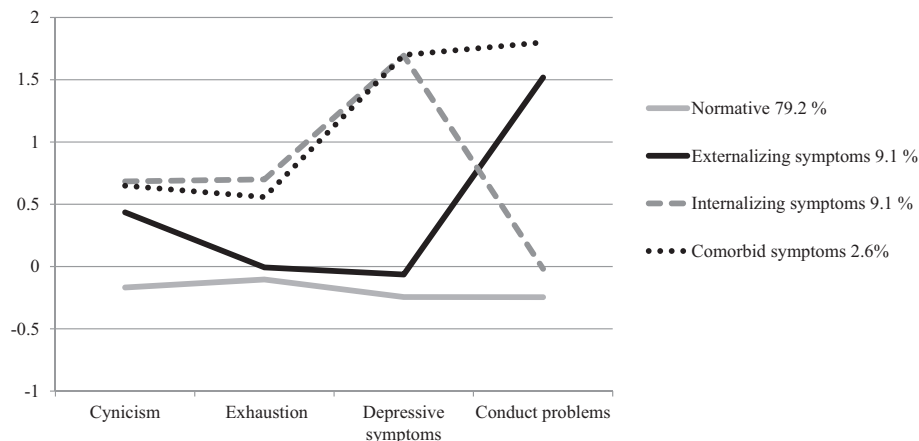


Fig. 1. Identified profile groups of the symptoms of psychological ill-being.

Table 4
Cross-tabulations of profile groups by gender and by educational track.

Group	Girls	Boys	Total	Academic	Vocational	Total
Normative <i>n</i> (%)	1213 (78.7%)	1074 (80.0%)	2287 (79.3%)	1363 (83.8%)	925 (73.3%)	2288 (79.2%)
Adj. std. res.	-0.9	0.9		6.9***	-6.9***	
Internalizing <i>n</i> (%)	206 (13.4%)	55 (4.1%)	261 (9.0%)	154 (9.5%)	109 (8.6%)	263 (9.1%)
Adj. std. res.	8.6***	-8.6***		0.8	-0.8	
Externalizing <i>n</i> (%)	86 (5.6%)	175 (13.0%)	261 (9.0%)	85 (5.2%)	178 (14.1%)	263 (9.1%)
Adj. std. res.	-7.0***	7.0***		-8.2***	8.2***	
Comorbid <i>n</i> (%)	37 (2.4%)	38 (2.8%)	75 (2.6%)	25 (1.5%)	50 (4.0%)	75 (2.6%)
Adj. std. res.	-0.7	0.7		-4.1***	4.1***	
Total <i>n</i> (%)	1542 (100%)	1342 (100%)	2884 (100%)	1627 (100%)	1262 (100%)	2889 (100%)

Note. Adj. std. res. = adjusted standardized residual.
*** *p* < .001.

or in the comorbid-symptoms group.

The associations between the profiles and the educational track were also significant ($\chi^2(3) = 88.06, p < .001$, Cramer's *V* = 0.18). The adjusted standardized residuals (Table 4) showed that the students in the academic track were overrepresented in the normative group, whereas the students in the vocational track were overrepresented in the comorbid-symptoms and externalizing-symptoms groups. There were no educational-track differences in the internalizing-symptoms group.

Finally, the result of the Pearson's chi-square test for gender-track groups (i.e., academic girls, academic boys, vocational girls, and vocational boys) was significant ($\chi^2(9) = 196.80, p < .001$, Cramer's *V* = 0.15). The adjusted standardized residuals (Table 5) showed that girls were overrepresented in the internalizing-symptoms group, regardless of their educational track, whereas only boys in the vocational track were overrepresented in the externalizing-symptoms group. Both girls and boys in the academic track were overrepresented in the normative group, whereas girls and boys in the vocational track were both overrepresented in the comorbid-symptoms group.

3.3. Profile groups and school dropout intentions

The third aim of the present study was to compare the profile groups with respect to school dropout intentions. The dropout intention variable was not normally distributed, because the majority of the students reported low levels of dropout intentions. Therefore, in the phase of the preliminary analyses, both the ANOVA and the Kruskal-Wallis test were performed. However, the results were consistent; thus, ANOVA was the selected method for the group comparisons. Additionally, covariates (i.e., gender, educational track, academic achievement, and parents'

educational levels) were included in the analysis comparing the profiles (i.e., ANCOVA), but as the results did not differ from the analyses conducted without the covariates, only the findings of the ANOVA without the covariates are reported here. The results (Table 3) showed that there were differences between the profile groups in school dropout intentions, as the students in all three symptomatic groups (i.e., internalizing, externalizing, and comorbid) reported higher dropout intentions than the students in the normative group. There were no differences between the three symptomatic groups.

3.4. Additional supplemental analyses

Because both cynicism and school dropout intentions can reflect disengagement from school, supplemental analyses were conducted to investigate whether the similarities between these two variables might have an influence on the results. First, the LPA was conducted without cynicism as a criterion variable. These analyses showed comparable results to the original profile solution: The four profile groups—that is, normative (79.4%), externalizing symptoms (7.9%), internalizing symptoms (8.8%), and comorbid symptoms (3.9%)—were also identified without cynicism and with similar group sizes as in the solution with cynicism. Then, the four profile groups formed without cynicism were compared with respect to school dropout intentions. The results of the ANOVA ($F(3, 2870) = 67.45, p < .001$) and post hoc paired comparisons (Tamhane) showed that in the analyses run without cynicism, the students in the three symptomatic groups demonstrated statistically significantly higher levels of school dropout intentions than the students in the normative group (*p* < .001). Overall, the pattern of results remained the same with one exception: Without the cynicism variable, the students in the comorbid-symptoms group reported higher

Table 5
Cross-tabulation of profile groups by gender-track groups.

Group	Academic girls	Academic boys	Vocational girls	Vocational boys	Total
Normative <i>n</i> (%)	820 (82.2%)	543 (86.5%)	393 (72.2%)	531 (74.4%)	2287 (79.3%)
Adj. std. res.	2.8**	5.0***	-4.5***	-3.7***	
Internalizing <i>n</i> (%)	122 (12.2%)	31 (4.9%)	84 (15.4%)	24 (3.4%)	261 (9.0%)
Adj. std. res.	4.3***	-4.1***	5.8***	-6.1***	
Externalizing <i>n</i> (%)	40 (4.0%)	45 (7.2%)	46 (8.5%)	130 (18.2%)	261 (9.0%)
Adj. std. res.	-6.9***	-1.9	-0.5	9.8***	
Comorbid <i>n</i> (%)	16 (1.6%)	9 (1.4%)	21 (3.9%)	29 (4.1%)	75 (2.6%)
Adj. std. res.	-2.4*	-2.1*	2.0*	2.8**	
Total <i>n</i> (%)	998 (100%)	628 (100%)	544 (100%)	714 (100%)	2884 (100%)

Note. Adj. std. res. = adjusted standardized residual.
* *p* < .05.
** *p* < .01.
*** *p* < .001.

dropout intentions ($M = 2.48$, $SD = 1.20$) than those in the externalizing-symptoms group ($M = 1.99$, $SD = 1.14$, $p = .002$).

The used school dropout intentions variable included two distinct items: one measuring intention to change school or field of study and the other measuring intention to quit current school or field of study. During the first year of upper secondary education studies, both of these intentions are likely to indicate a risk of dropping out of current studies. However, intention to quit might indicate more severe dropout risk (i.e., dropping out without continuing studies elsewhere) than intention to change school. Therefore, additional supplemental analysis was carried out using only the item assessing intention to quit school. The results of this additional analysis, however, revealed a pattern of results that was similar to that found in the original analysis. The results of the ANOVA ($F(3, 2865) = 66.90$, $p < .001$) and post hoc paired comparisons (Tamhane) showed that the students in all three symptomatic groups (i.e., internalizing, externalizing, and comorbid) reported higher dropout intentions than the students in the normative group ($p < .001$), while there were no differences between the three symptomatic groups.

4. Discussion

The present study expands upon existing person-centered research on students' symptoms of psychological ill-being in several ways. First, the identification of four distinct profile groups suggests that upper secondary education students' symptoms of psychological ill-being manifest in several different ways and that depressive symptoms and conduct problems tend to coincide with school-related exhaustion and cynicism among symptomatic students. Second, the results imply that there are not only gender but also educational-track differences in students' symptoms. Finally, the present study increases understanding of the process of dropping out of school by showing that students who experienced symptoms of psychological ill-being reported higher levels of school dropout intentions than their peers with low levels of symptoms.

As hypothesized based on previous person-centered studies (Parhiala et al., 2018; Tetzner et al., 2017; Tuominen-Soini & Salmela-Aro, 2014; Virtanen et al., 2019), upper secondary education students showed variability in the symptoms of psychological ill-being, as one asymptomatic and three symptomatic profile groups were identified. A reassuring finding was that, although adolescence is a turbulent period of life, the vast majority of students (79.2%) did not indicate elevated symptoms and, consequently, belonged to the group labeled *normative*. This finding is in line with previous person-centered studies, showing that most of the students experience low levels of symptoms (e.g., McElroy et al., 2017; Parhiala et al., 2018; Tetzner et al., 2017). However, approximately 20% of the students reported various combinations of symptoms. This demonstrated that symptoms of psychological ill-being were rather common among the upper secondary education students and that the identification of these symptomatic subgroups is important for the provision of support if and when this is needed.

According to the previous person-centered studies, individuals typically show either internalizing, externalizing, or comorbid symptoms (McElroy et al., 2017; Olinio et al., 2012; Vaidyanathan et al., 2011). In the present study, similar qualitative differences in the symptoms of psychological ill-being were also identified among Finnish upper secondary education students, as either depressive symptoms or conduct problems were the most prominent. The students in the internalizing-symptoms group (9.1%) displayed relatively high levels of depressive symptoms along with exhaustion and cynicism but relatively low levels of conduct problems. The externalizing-symptoms group (9.1%) was, in contrast, characterized by relatively high levels of conduct problems but relatively low levels of depressive symptoms. The students in this group also reported cynicism but did not indicate elevated levels of exhaustion. The comorbid-symptoms group was the smallest (2.6%),

but the students in this group indicated the severest combinations of symptoms, as the profile was characterized by relatively high levels of depressive symptoms and conduct problems, as well as elevated levels of exhaustion and cynicism.

Groups characterized by high levels of symptoms of school burnout without general, context-free symptoms were not found among the students. Instead, symptoms of school burnout coincided with depressive symptoms and conduct problems, as hypothesized. Hence, these findings imply that students' symptoms are typically not restricted exclusively to school contexts nor the other way around, as general symptoms do not occur without school-specific symptoms. This result is in line with previous findings on concurrent symptoms, although prior person-centered studies have examined overall school burnout instead of separate dimensions (Parhiala et al., 2018; Virtanen et al., 2019). Altogether, these findings suggest that the subjective experiences of being overtaxed, stressed out, and disillusioned with schoolwork are typically combined with a broader set of symptoms.

After identifying the profile groups, the roles of gender and educational track in the symptoms of psychological ill-being were examined. In accordance with our hypotheses and the earlier literature on gender differences (Herrmann et al., 2019; Salmela-Aro et al., 2008; Wade et al., 2002), the results showed that in both tracks, girls were overrepresented in the internalizing-symptoms group, which was characterized by depressive symptoms, exhaustion, and cynicism. This finding suggests that gender plays a more relevant role in such combinations of symptoms than the educational track does. In the previous literature, boys and vocational-track students are shown to report more externalizing symptoms (Hakkarainen et al., 2016; Lahey et al., 2000). The results of the present study were in line with this earlier literature but only in the context of boys in the vocational track, as they were overrepresented in the externalizing-symptoms group, which was characterized by conduct problems and cynicism. Although the previous study by Salmela-Aro and Tynkkynen (2012) showed that boys in the academic track reported the highest level of cynicism, it seems that if cynicism overlaps with conduct problems, the boys in the vocational track are at the greatest risk. The results further indicated that both girls and boys in the academic track were overrepresented in the normative group, whereas girls and boys in the vocational track were overrepresented in the comorbid-symptoms group.

Until now, attention has been centered primarily on the symptoms arising among academic-track students, because schoolwork in the academic-track system is considered demanding and consequently exposes students to school burnout (Salmela-Aro et al., 2008; Salmela-Aro & Tynkkynen, 2012). The results of the present study, however, stress that vocational-track students' vulnerabilities to the symptoms of psychological ill-being should not be overlooked. Like the girls in the academic track, the girls in the vocational track were prone to depressive symptoms and symptoms of school burnout. Additionally, the combination of conduct problems and cynicism was a problem especially among boys in the vocational track, and comorbid symptoms—the severest form of symptoms—were more typical among vocational-track students. Thus far, relatively little is known about the role of the educational track in symptoms of psychological ill-being (Hagquist, 2007; Hakkarainen et al., 2016; Korhonen et al., 2017; Salmela-Aro & Tynkkynen, 2012); however, the present study clearly suggests that in addition to gender differences, there are educational-track differences in the symptoms. It is possible that the differences between factors such as social support and the demands of the curriculum contribute to the track specificities in symptoms among upper secondary education students. Moreover, students who already show externalizing symptoms in lower secondary school might continue their studies in the vocational track, which is considered to be less academically demanding (Hakkarainen et al., 2016). Although some studies have examined the stability of identified profiles (e.g., Tuominen-Soini & Salmela-Aro, 2014; Virtanen et al., 2019), it remains rather unclear whether the same students continue having problems throughout the

school years and why. Longitudinal person-centered research with a greater focus on the stability and development of symptoms is, therefore, suggested.

While it is well documented that certain symptoms and disorders increase the risk of dropping out (Bask & Salmela-Aro, 2013; Breslau et al., 2008; Esch et al., 2014), little is known about whether specific combinations of symptoms are linked to higher dropout risk. Therefore, the aim of the present study was to examine whether identified profile groups would differ with respect to school dropout intentions. First, as expected, the students in the normative group reported lower dropout intentions than the students in the symptomatic groups. Second, no differences were found between the three symptomatic groups. Although externalizing symptoms have been more consistently linked to dropping out of school when compared to internalizing symptoms (Breslau et al., 2011; Esch et al., 2014), the present findings suggest that the existence, rather than the quality, of the symptoms is linked to higher dropout intentions. In other words, students reporting any symptoms of psychological ill-being might be at greater risk of dropping out than their peers without symptoms. The present findings concur with previous study results (Janosz et al., 2000; Orpinas et al., 2015) showing that various problems might lead to the same outcome—in this case, to thoughts about dropping out of school. It is also worth noting that we examined the continuum of symptoms rather than psychiatric disorders, which shows that even non-clinical symptoms of psychological ill-being are associated with higher school dropout risk. Moreover, the results remained similar after controlling for the effects of gender, educational track, previous academic achievement, and parents' educational levels, further emphasizing the relevant role of symptoms of psychological ill-being.

Thus far, the pathways that link the symptoms of psychological ill-being to school dropout risk are rather unclear. However, it has been proposed that various symptoms might affect dropout processes in different ways (Breslau et al., 2011). For example, Quiroga et al. (2013) pointed out that self-perceived academic competence mediated the connection between depressive symptoms and dropping out, meaning that students indicating depressive symptoms were also pessimistic about their academic competence and were, therefore, at risk of dropping out. Additionally, depressive symptoms, such as decreased energy and interest, might affect school functioning in multiple ways and, thus, increase the dropout risk (Dupéré et al., 2018). In contrast, it has been suggested that students with conduct problems might show increased dropout risk, for example, because getting in trouble at school might discourage them from studying or because students showing problematic behaviors might struggle with school engagement (Breslau et al., 2011; Wang & Fredricks, 2014). Additionally, school-related symptoms may heighten dropout risk. If students are exhausted and stressed out because of their schoolwork, they try to cope with the stress and might contemplate abandoning the stressful studies altogether (Eicher et al., 2014). Cynical students, in contrast, find studying irrelevant and uninteresting, which might lead to intentions to drop out or, in the worst case, to actual dropping out (Bask & Salmela-Aro, 2013). Overall, the results suggest that the symptoms of psychological ill-being might increase dropout risk, but more research is needed to unravel the mechanisms linking symptoms to the dropout process.

4.1. Practical implications

The present study showed that a notable percentage of upper secondary education students are struggling with symptoms of psychological ill-being. The finding is particularly alarming because these symptomatic students might have an increased risk of dropping out, as they reported higher dropout intentions than their peers with low levels of symptoms. The present study has several important implications for developing support strategies for students. First, the identification of three distinct symptomatic profiles suggests that multifaceted intervention strategies targeting specific subgroups are needed, as different

combinations of symptoms may require different approaches. Second, in regard to the interventions applied in upper secondary education, careful consideration should be given to the gender and educational-track differences in the symptoms of psychological ill-being. Although targeted interventions for at-risk adolescents have been shown to be most efficient, universal mental health promotion in schools is also needed (Horowitz & Garber, 2006). Thus, it has been recommended that school-based interventions should combine universal and targeted practices, which should, in turn, be linked to everyday school life (Weare & Nind, 2011). The school environment should support students' well-being; for instance, school personnel should be able to recognize students who are in need of help, and mental health services should be readily available for and positively perceived by all students. Additionally, the present study suggests that it is important to pay particular attention to those students who contemplate abandoning their studies before graduation. School dropout intentions have been shown to precede actual dropping out (Eicher et al., 2014; Frostad et al., 2015). Therefore, the recognition of students' dropout intentions before they conclusively decide to drop out is necessary in order to offer support in time. Further studies are needed to identify and examine which factors and approaches related to mental health interventions are effective in preventing dropping out and to synthesize what is already understood of the process and the early signs of disengagement (e.g., truancy) and the models used by schools to tackle these issues.

4.2. Limitations

The present study has several limitations that should be acknowledged. To begin with, the upper secondary education context elsewhere may differ from the Finnish situation. Thus, generalization of the present findings on students' symptoms of psychological ill-being should be made with caution, as person-centered analyses might reveal different profiles in other populations (Laursen & Hoff, 2006). A few limitations also exist regarding the study design and instruments used in the present study. First, although both context-free and school-related symptoms of psychological ill-being were examined, other indicators of psychological ill- and well-being should be considered in future studies. Indicators such as self-esteem and life satisfaction would illustrate the positive side of psychological functioning. Second, conduct problems should optimally be measured with an alternative instrument in further studies, as the Cronbach's alpha reliability coefficient for conduct problems was relatively low, and self-reports might not sufficiently measure problem severity. Third, two out of three dimensions of school burnout were examined in the present study; in further studies, the potential contribution of the dimension of inadequacy and its links to other symptoms should be investigated. Fourth, cynicism—one of the indicators of school burnout—partly overlaps with the school dropout intentions variable, as both constructs can reflect disengagement from school. While the negative affects related to cynicism come close to emotional disengagement, dropout intentions resemble behavioral disengagement. Due to the possible overlap between the constructs of cynicism and school dropout intentions, we conducted supplemental analyses in which cynicism was excluded from the profiles. The results, however, remained comparable to the original findings. Fifth, we investigated students' school dropout intentions using only two items and actual dropping out was not examined because the setting was cross-sectional. Although dropout intentions are accurate markers of the dropout risk (Eicher et al., 2014), and they enabled the investigation of the role of symptoms prior to actual dropping out, the next step is to determine whether specific profiles of the symptoms of psychological ill-being are connected to actual dropping out. Finally, although we controlled for students' academic achievements and parents' educational levels, we did not consider other factors that may place students at risk of dropping out, nor did we investigate how various factors might, for example, mediate or moderate the connections between symptoms of psychological ill-being and school dropout intentions.

4.3. Conclusion

All things considered, the present study emphasized the multifaceted nature of upper secondary education students' symptoms of psychological ill-being and showed that the person-centered approach is a useful method of screening students' symptoms. Every fifth student indicated symptoms, which demonstrates that symptoms of psychological ill-being are rather common in upper secondary education. Each of the identified symptomatic profiles was associated with higher school dropout intentions, which implies that symptoms might contribute to elevated risks of dropping out. Consequently, courses of action to prevent different symptoms in schools are suggested.

References

- Alivernini, F., & Lucidi, F. (2011). Relationship between social context, self-efficacy, motivation, academic achievement, and intention to drop out of high school: A longitudinal study. *The Journal of Educational Research*, *104*(4), 241–252. <https://doi.org/10.1080/00220671003728062>.
- Angold, A., & Costello, E. J. (1993). Depressive comorbidity in children and adolescents: Empirical, theoretical, and methodological issues. *American Journal of Psychiatry*, *150*(12), 1779–1791. <https://doi.org/10.1176/ajp.150.12.1779>.
- Bask, M., & Salmela-Aro, K. (2013). Burned out to drop out: Exploring the relationship between school burnout and school dropout. *European Journal of Psychology of Education*, *28*(2), 511–528. <https://doi.org/10.1016/j.jaac.2013.05.007>.
- Basten, M. M. G. J., Althoff, R. R., Tiemeier, H., Jaddoe, V. W. V., Hofman, A., Hudziak, J. J., ... van der Ende, J. (2013). The dysregulation profile in young children: Empirically defined classes in the Generation R study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *52*(8), 841–850. <https://doi.org/10.1016/j.jaac.2013.05.007>.
- Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology*, *9*(2), 291–319. <https://doi.org/10.1017/S095457949700206X>.
- Bianchi, V., Brambilla, P., Garzitto, M., Colombo, P., Fornasari, L., Bellina, M., & Nobile, M. (2017). Latent classes of emotional and behavioural problems in epidemiological and referred samples and their relations to DSM-IV diagnoses. *European Child and Adolescent Psychiatry*, *26*(5), 549–557. <https://doi.org/10.1007/s00787-016-0918-2>.
- Breslau, J., Lane, M., Sampson, N., & Kessler, R. C. (2008). Mental disorders and subsequent educational attainment in a US national sample. *Journal of Psychiatric Research*, *42*(9), 708–716. <https://doi.org/10.1016/j.jpsyres.2008.01.016>.
- Breslau, J., Miller, E., Chung, W.-J., & Schweitzer, J. B. (2011). Childhood and adolescent onset psychiatric disorders, substance use, and failure to graduate high school on time. *Journal of Psychiatric Research*, *45*(3), 295–301. <https://doi.org/10.1016/j.jpsyres.2010.06.014>.
- Brière, F. N., Pascal, S., Dupéré, V., Castellanos-Ryan, N., Allard, F., Yale-Soulière, G., & Janosz, M. (2017). Depressive and anxious symptoms and the risk of secondary school non-completion. *The British Journal of Psychiatry*, *211*(3), 163–168. <https://doi.org/10.1192/bjp.bp.117.201418>.
- Cadime, I., Marques-Pinto, A., Lima, S., Rego, S., Pereira, J., & Ribeiro, I. (2016). Well-being and academic achievement in secondary school pupils: The unique effects of burnout and engagement. *Journal of Adolescence*, *53*, 169–179. <https://doi.org/10.1016/j.adolescence.2016.10.003>.
- Cicchetti, D., & Toth, S. L. (1991). A developmental perspective on internalizing and externalizing disorders. In D. Cicchetti, & S. L. Toth (Vol. Eds.), *Rochester symposium on developmental psychopathology: Internalizing and externalizing expressions of dysfunction. Vol. 2. Rochester symposium on developmental psychopathology: Internalizing and externalizing expressions of dysfunction* (pp. 1–20). Hillsdale, NJ: Erlbaum.
- De Witte, K., Cabus, S., Thyssen, G., Groot, W., & Maassen van den Brink, H. (2013). A critical review of the literature on school dropout. *Educational Research Review*, *10*, 13–28. <https://doi.org/10.1016/j.edurev.2013.05.002>.
- Dupéré, V., Dion, E., Nault-Brière, F., Archambault, I., Leventhal, T., & Lesage, A. (2018). Revisiting the link between depression symptoms and high school dropout: Timing of exposure matters. *Journal of Adolescent Health*, *62*(2), 205–211. <https://doi.org/10.1016/j.jadohealth.2017.09.024>.
- Eccles, J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*(1), 225–241. <https://doi.org/10.1111/j.1532-7795.2010.00725.x>.
- Egger, H. L., Costello, E. J., & Angold, A. (2003). School refusal and psychiatric disorders: A community study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*(7), 797–807. <https://doi.org/10.1097/01.CHL.0000046865.56865.79>.
- Eicher, V., Staerklé, C., & Clémence, A. (2014). I want to quit education: A longitudinal study of stress and optimism as predictors of school dropout intention. *Journal of Adolescence*, *37*(7), 1021–1030. <https://doi.org/10.1016/j.adolescence.2014.07.007>.
- Esch, P., Bocquet, V., Pull, C., Couffignal, S., Lehner, T., Graas, M., ... Anseau, M. (2014). The downward spiral of mental disorders and educational attainment: A systematic review on early school leaving. *BMC Psychiatry*, *14*, 237. <https://doi.org/10.1186/s12888-014-0237-4>.
- Eurostat (2019). Early leavers from education and training. Retrieved September 5, 2019, from https://ec.europa.eu/eurostat/statistics-explained/index.php/Early_leavers_from_education_and_training.
- Fiorilli, C., De Stasio, S., Di Chiacchio, C., Pepe, A., & Salmela-Aro, K. (2017). School burnout, depressive symptoms and engagement: Their combined effect on student achievement. *International Journal of Educational Research*, *84*, 1–12. <https://doi.org/10.1016/j.ijer.2017.04.001>.
- Fröjd, S. A., Nissinen, E. S., Pelkonen, M. U. I., Marttunen, M. J., Koivisto, A.-M., & Keltiala-Heino, R. (2008). Depression and school performance in middle adolescent boys and girls. *Journal of Adolescence*, *31*(4), 485–498. <https://doi.org/10.1016/j.adolescence.2007.08.006>.
- Frostaad, P., Pijl, S. J., & Mjaavatt, P. E. (2015). Losing all interest in school: Social participation as a predictor of the intention to leave upper secondary school early. *Scandinavian Journal of Educational Research*, *59*(1), 110–122. <https://doi.org/10.1080/00313831.2014.904420>.
- Garvik, M., Idsoe, T., & Bru, E. (2014). Depression and school engagement among Norwegian upper secondary vocational school students. *Scandinavian Journal of Educational Research*, *58*(5), 592–608. <https://doi.org/10.1080/00313831.2013.798835>.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>.
- Graber, J. A., & Sontag, L. M. (2009). Internalizing problems during adolescence. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology, volume 1: Individual bases of adolescent development* (pp. 642–682). (3rd ed.). Hoboken, NJ: John Wiley & Sons Inc. <https://doi.org/10.1002/9780470479193.adlpsy001020>.
- Hagquist, C. E. I. (2007). Health inequalities among adolescents: The impact of academic orientation and parent's education. *European Journal of Public Health*, *17*(1), 21–26. <https://doi.org/10.1093/eurpub/ckl087>.
- Hakkara, A. M., Holopainen, L. K., & Savolainen, H. K. (2016). The impact of learning difficulties and socioemotional and behavioural problems on transition to post-secondary education or work life in Finland: A five-year follow-up study. *European Journal of Special Needs Education*, *31*(2), 171–186. <https://doi.org/10.1080/08856257.2015.1125688>.
- Hardre, P. L., & Reeve, J. (2003). A motivational model of rural students' intentions to persist in, versus drop out of, high school. *Journal of Educational Psychology*, *95*(2), 347–356. <https://doi.org/10.1037/0022-0663.95.2.347>.
- Herrmann, J., Koeppen, K., & Kessels, U. (2019). Do girls take school too seriously? Investigating gender differences in school burnout from a self-worth perspective. *Learning and Individual Differences*, *69*, 150–161. <https://doi.org/10.1016/j.lindif.2018.11.011>.
- Hinshaw, S. P. (1992). Externalizing behavior problems and academic underachievement in childhood and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin*, *111*(1), 127–155. <https://doi.org/10.1037/0033-2909.111.1.127>.
- Horowitz, J. L., & Garber, J. (2006). The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *74*(3), 401–415. <https://doi.org/10.1037/0022-006X.74.3.401>.
- Howard, M. C., & Hoffman, M. E. (2018). Variable-centered, person-centered, and person-specific approaches: Where theory meets the method. *Organizational Research Methods*, *21*(4), 846–876. <https://doi.org/10.1177/1094428117744021>.
- Janosz, M., Le Blanc, M., Boulerice, B., & Tremblay, R. E. (2000). Predicting different types of school dropouts: A typological approach with two longitudinal samples. *Journal of Educational Psychology*, *92*(1), 171–190. <https://doi.org/10.1037/0022-0663.92.1.171>.
- Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). Social consequences of psychiatric disorders. I: Educational attainment. *American Journal of Psychiatry*, *152*(7), 1026–1032. <https://doi.org/10.1176/ajp.152.7.1026>.
- Kiuru, N., Aunola, K., Nurmi, J.-E., Leskinen, E., & Salmela-Aro, K. (2008). Peer group influence and selection in adolescent's school burnout: A longitudinal study. *Merrill-Palmer Quarterly*, *54*(1), 23–35. <https://doi.org/10.1353/mpq.2008.0008>.
- Korhonen, K., Remes, H., & Martikainen, P. (2017). Education as a social pathway from parental socioeconomic position to depression in late adolescence and early adulthood: A Finnish population-based register study. *Social Psychiatry and Psychiatric Epidemiology*, *52*(1), 105–116. <https://doi.org/10.1007/s00127-016-1296-2>.
- Koskelainen, M., Sourander, A., & Kaljonen, A. (2000). The Strengths and Difficulties Questionnaire among Finnish school-aged children and adolescents. *European Child and Adolescent Psychiatry*, *9*(4), 277–284. <https://doi.org/10.1007/s007870070031>.
- Lahey, B. B., Schwab-Stone, M., Goodman, S. H., Waldman, I. D., Canino, G., Rathouz, P. J., ... Jensen, P. S. (2000). Age and gender differences in oppositional behavior and conduct problems: A cross-sectional household study of middle childhood and adolescence. *Journal of Abnormal Psychology*, *109*(3), 488–503. <https://doi.org/10.1037/0021-843X.109.3.488>.
- Lansford, J. E., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2016). A public health perspective on school dropout and adult outcomes: A prospective study of risk and protective factors from age 5 to 27 years. *Journal of Adolescent Health*, *58*(6), 652–658. <https://doi.org/10.1016/j.jadohealth.2016.01.014>.
- Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly*, *52*(3), 377–389. <https://doi.org/10.1353/mpq.2006.0029>.
- Lerkkanen, M.-K., Niemi, P., Poikkeus, A.-M., Poskiparta, E., Siekkinen, M., & Nurmi, J.-E. (2006–2016). *The First Steps study [Alkuportaat]. Unpublished data. Jyväskylä, Finland: University of Jyväskylä.*
- Lewinsohn, P. M., Shankman, S. A., Gau, J. M., & Klein, D. N. (2004). The prevalence and co-morbidity of subthreshold psychiatric conditions. *Psychological Medicine*, *34*(4), 613–622. <https://doi.org/10.1017/S0033291703001466>.
- Markussen, E., Froseth, M. W., & Sandberg, N. (2011). Reaching for the unreachable: Identifying factors predicting early school leaving and non-completion in Norwegian upper secondary education. *Scandinavian Journal of Educational Research*, *55*(3), 225–253. <https://doi.org/10.1080/00313831.2011.576876>.

- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422. <https://doi.org/10.1146/annurev.psych.52.1.397>.
- May, R. W., Bauer, K. N., & Fincham, F. D. (2015). School burnout: Diminished academic and cognitive performance. *Learning and Individual Differences*, 42, 126–131. <https://doi.org/10.1016/j.lindif.2015.07.015>.
- McElroy, E., Shevlin, M., & Murphy, J. (2017). Internalizing and externalizing disorders in childhood and adolescence: A latent transition analysis using ALSPAC data. *Comprehensive Psychiatry*, 75, 75–84. <https://doi.org/10.1016/j.comppsy.2017.03.003>.
- Melkevik, O., Nilsen, W., Evensen, M., Reneflot, A., & Mykletun, A. (2016). Internalizing disorders as risk factors for early school leaving: A systematic review. *Adolescent Research Review*, 1(3), 245–255. <https://doi.org/10.1007/s40894-016-0024-1>.
- Mikkonen, J., Moustgaard, H., Remes, H., & Martikainen, P. (2018). The population impact of childhood health conditions on dropout from upper-secondary education. *The Journal of Pediatrics*, 196, 283–290 e4. <https://doi.org/10.1016/j.jpeds.2018.01.034>.
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthén & Muthén.
- Official Statistics of Finland. *Discontinuation of education*. (2017). http://www.stat.fi/til/kkesk/2017/kkesk_2017_2019-03-14_tie_001_en.html Retrieved from.
- Official Statistics of Finland (2017b). *Entrance to education. Appendix table 1. Direct transition to further studies of completers of the 9th grade of comprehensive school*. 2000–2017. Retrieved from http://www.stat.fi/til/khak/2017/khak_2017_2018-12-13_tau_001_en.html.
- Olino, T. M., Klein, D. M., Farmer, R. F., Seeley, J. R., & Lewinsohn, P. M. (2012). Examination of the structure of psychopathology using latent class analysis. *Comprehensive Psychiatry*, 53(4), 323–332. <https://doi.org/10.1016/j.comppsy.2011.05.008>.
- Orpinas, P., Raczynski, K., Peters, J. W., Colman, L., & Bandalos, D. (2015). Latent profile analysis of sixth graders based on teacher ratings: Association with school dropout. *School Psychology Quarterly*, 30(4), 577–592. <https://doi.org/10.1037/spq0000107>.
- 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. <https://doi.org/10.1016/j.lindif.2017.12.003>.
- Parker, P. D., & Salmela-Aro, K. (2011). Developmental processes in school burnout: A comparison of major developmental models. *Learning and Individual Differences*, 21(2), 244–248. <https://doi.org/10.1016/j.lindif.2011.01.005>.
- Petersen, K. J., Qualter, P., & Humphrey, N. (2019). The application of latent class analysis for investigating population child mental health: A systematic review. *Frontiers in Psychology*, 10, 1214. <https://doi.org/10.3389/fpsyg.2019.01214>.
- Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*, 56(3), 345–365. <https://doi.org/10.1111/jcpp.12381>.
- Quiroga, C. V., Janosz, M., Bisset, S., & Morin, A. J. S. (2013). Early adolescent depression symptoms and school dropout: Mediating processes involving self-reported academic competence and achievement. *Journal of Educational Psychology*, 105(2), 552–560. <https://doi.org/10.1037/a0031524>.
- Rumberger, R. W. (1987). High school dropouts: A review of issues and evidence. *Review of Educational Research*, 57(2), 101–121. <https://doi.org/10.3102/00346543057002101>.
- Rumberger, R. W. (2011). *Dropping out: Why students drop out of high school and what can be done about it*. MA: Harvard University Press Cambridge.
- Rumberger, R. W., & Rotermund, S. (2012). The relationship between engagement and high school dropout. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.). *Handbook of research on student engagement* (pp. 491–513). Boston, MA: Springer.
- Sagatun, Å., Heyerdahl, S., Wentzel-Larsen, T., & Lien, L. (2014). Mental health problems in the 10th grade and non-completion of upper secondary school: The mediating role of grades in a population-based longitudinal study. *BMC Public Health*, 14, 16. <https://doi.org/10.1186/1471-2458-14-16>.
- Salmela-Aro, K., Kiuru, N., Leskinen, E., & Nurmi, J.-E. (2009). School Burnout Inventory (SBI): Reliability and validity. *European Journal of Psychological Assessment*, 25(1), 48–57. <https://doi.org/10.1027/1015-5759.25.1.48>.
- Salmela-Aro, K., Kiuru, N., & Nurmi, J.-E. (2008). The role of educational track in adolescent's school burnout: A longitudinal study. *British Journal of Educational Psychology*, 78(4), 663–689. <https://doi.org/10.1348/000709908X281628>.
- Salmela-Aro, K., Muotka, J., Alho, K., Hakkarainen, K., & Lonka, K. (2016). School burnout and engagement profiles among digital natives in Finland: A person-oriented approach. *European Journal of Developmental Psychology*, 13(6), 704–718. <https://doi.org/10.1080/17405629.2015.1107542>.
- Salmela-Aro, K., Savolainen, H., & Holopainen, L. (2009). Depressive symptoms and school burnout during adolescence: Evidence from two cross-lagged longitudinal studies. *Journal of Youth and Adolescence*, 38(10), 1316–1327. <https://doi.org/10.1007/s10964-008-9334-3>.
- Salmela-Aro, K., & Tynkkynen, L. (2012). Gendered pathways in school burnout among adolescents. *Journal of Adolescence*, 35(4), 929–939. <https://doi.org/10.1016/j.adolescence.2012.01.001>.
- Salmela-Aro, K., & Upadaya, K. (2014). School burnout and engagement in the context of demands-resources model. *British Journal of Educational Psychology*, 84(1), 137–151. <https://doi.org/10.1111/bjep.12018>.
- Salokangas, R. K. R., Poutanen, O., & Stengård, E. (1995). Screening for depression in primary care. Development and validation of the Depression Scale, a screening instrument for depression. *Acta Psychiatrica Scandinavica*, 92(1), 10–16. <https://doi.org/10.1111/j.1600-0447.1995.tb09536.x>.
- Schaufeli, W. B., Martínez, I. M., Marques-Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-Cultural Psychology*, 33(5), 464–481. <https://doi.org/10.1177/0022022102033005003>.
- Seedat, S., Scott, K. M., Angermeyer, M. C., Berglund, P., Bromet, E. J., Brugha, T. S., ... Kessler, R. C. (2009). Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys. *Archives of General Psychiatry*, 66(7), 785–795. <https://doi.org/10.1001/archgenpsychiatry.2009.36>.
- Tetzner, J., Kliegl, R., Krahé, B., Busching, R., & Esser, G. (2017). Developmental problems in adolescence: A person-centered analysis across time and domains. *Journal of Applied Developmental Psychology*, 53, 40–53. <https://doi.org/10.1016/j.appdev.2017.08.003>.
- Tuominen-Soini, H., & Salmela-Aro, K. (2014). Schoolwork engagement and burnout among Finnish high school students and young adults: Profiles, progressions, and educational outcomes. *Developmental Psychology*, 50(3), 649–662. <https://doi.org/10.1037/a0033898>.
- Vaidyanathan, U., Patrick, C. J., & Iacono, W. G. (2011). Patterns of comorbidity among mental disorders: A person-centered approach. *Comprehensive Psychiatry*, 52(5), 527–535. <https://doi.org/10.1016/j.comppsy.2010.10.006>.
- Vallerand, R. J., Fortier, M. S., & Guay, F. (1997). Self-determination and persistence in a real-life setting: Toward a motivational model of high school dropout. *Journal of Personality and Social Psychology*, 72(5), 1161–1176. <https://doi.org/10.1037/0022-3514.72.5.1161>.
- Vasalampi, K., & Aunola, K. (2016–). *The School Path: From First Steps to Secondary and Higher Education study [Koulupolku: Alkupaikalta jatko-opintoihin]*. Unpublished data. Jyväskylä, Finland: University of Jyväskylä.
- Vasalampi, K., Kiuru, N., & Salmela-Aro, K. (2018). The role of a supportive interpersonal environment and education-related goal motivation during the transition beyond upper secondary education. *Contemporary Educational Psychology*, 55, 110–119. <https://doi.org/10.1016/j.cedpsych.2018.09.001>.
- Virtanen, T. E., Vasalampi, K., Torppa, M., Lerkkanen, M.-K., & Nurmi, J.-E. (2019). Changes in student's psychological well-being during transition from primary school to lower secondary school: A person-centered approach. *Learning and Individual Differences*, 69, 138–149. <https://doi.org/10.1016/j.lindif.2018.12.001>.
- Wade, T. J., Cairney, J., & Pevalin, D. J. (2002). Emergence of gender differences in depression during adolescence: National panel results from three countries. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(2), 190–198. <https://doi.org/10.1097/00004583-200202000-00013>.
- Walburg, V., Moncla, D., & Mialhes, A. (2015). Burnout among high-school students and cannabis use, consumption frequencies, abuse and dependence. *Child & Youth Care Forum*, 44(1), 33–42. <https://doi.org/10.1007/s10566-014-9268-8>.
- Wang, M.-T., & Fredricks, J. A. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child Development*, 85(2), 722–737. <https://doi.org/10.1111/cdev.12138>.
- Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International*, 26(Suppl.1), i29–i69. <https://doi.org/10.1093/heapro/dar075>.
- Widlund, A., Tuominen, H., & Korhonen, J. (2018). Academic well-being, mathematics performance, and educational aspirations in lower secondary education: Changes within a school year. *Frontiers in Psychology*, 9, 297. <https://doi.org/10.3389/fpsyg.2018.00297>.
- Wolff, J. C., & Ollendick, T. H. (2006). The comorbidity of conduct problems and depression in childhood and adolescence. *Clinical Child and Family Psychology Review*, 9(3–4), 201–220. <https://doi.org/10.1007/s10567-006-0011-3>.
- World Health Organization (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization.
- Zahn-Waxler, C., Klimes-Dougan, B., & Slattery, M. J. (2000). Internalizing problems of childhood and adolescence: Prospects, pitfalls, and progress in understanding the development of anxiety and depression. *Development and Psychopathology*, 12(3), 443–466. <https://doi.org/10.1017/S0954579400003102>.