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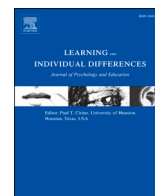
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A person-oriented approach to maternal homework involvement during the transition to lower secondary school[☆]

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ABSTRACT

This study examined patterns of mothers' homework involvement ($n = 680$ in Grade 6 and 665 in Grade 7) and changes in them during 12-year-old Finnish adolescents' ($n = 848$; 391 boys) transition to lower secondary school. Moreover, the extent to which adolescents' motivational behavior and prior academic achievement predicted these patterns was examined. The latent transition analyses identified four relatively stable latent patterns of maternal homework involvement in Grades 6 and 7: averagely involved, psychologically controlling and intrusive, noninvolved, and intrusive monitoring and helping. The higher task avoidance and the poorer achievement adolescents showed, the more likely their mothers were to utilize a psychologically controlling and intrusive pattern, or an intrusive monitoring and helping pattern. Overall, these results suggest that some mothers may benefit from understanding of how to best support struggling and task-avoidant adolescents during the transition from primary to lower secondary school.

1. Introduction

Parental involvement with homework has been suggested to play a role in adolescents' motivational and academic development (Patall et al., 2008; Pomerantz et al., 2007). Parents may be involved in homework in different ways, ranging from adolescent- or parent-initiated assistance to providing support for the adolescent to do homework independently (Grolnick & Slowiaczek, 1994; Hoover-Dempsey & Sandler, 1997). Despite the multidimensionality of parental involvement (i.e., the quantity, quality, and source of initiative; Grolnick & Slowiaczek, 1994; Moroni et al., 2015), most previous studies in the homework context have investigated parental involvement dimensions separately using a variable-oriented approach (e.g., Cooper et al., 2000; Dumont et al., 2014). Hence, little is known about different combinations of parental involvement dimensions (for exceptions, see Lara & Saracostti, 2019; Moroni et al., 2016). In line with parenting styles research (Baumrind, 1966; Maccoby & Martin, 1983), parents are likely to show unique patterns of both supportive and controlling homework involvement practices. Consequently, this study aimed to identify these unique patterns of homework involvement in regard to the

quantity, quality, and source of initiative in a sample of Finnish mothers across adolescents' transition from primary to lower secondary school. Focusing on parental homework involvement in early adolescence is important because, in addition to facing the educational transition, adolescents experience various developmental changes (e.g., puberty, heightened need for autonomy and independence) that may cause challenges for parents in finding optimal ways to support adolescents' learning (Eccles et al., 1993; Hill & Tyson, 2009). Moreover, because theories of the evocative effect have suggested that children's characteristics are important promoters of parental behavior (Bell, 1968; Scarr & McCartney, 1983), the role of adolescents' motivational behavior and prior achievement as antecedents of maternal homework involvement patterns were examined in this study.

1.1. Dimensions of parental homework involvement

Parental homework involvement is a multidimensional construct consisting of quantity (e.g., frequency of parental help), quality (e.g., supporting the adolescent's autonomy), and source of initiative for involvement (i.e., whether it is primarily the adolescent or the parent

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who initiates homework involvement; Grolnick & Slowiaczek, 1994; Hoover-Dempsey & Sandler, 1997). Following the self-determination theory (SDT; Ryan & Deci, 2017), parental homework involvement can differently satisfy adolescents' psychological needs for autonomy, competence, and relatedness. The satisfaction of autonomy (i.e., volition and sense of control), competence (i.e., sense of mastery), and relatedness (i.e., sense of belonging) are important for adolescents' self-determined behavior and intrinsic motivation (Deci & Ryan, 2000; Ryan & Deci, 2017). Thus, if parents can approach adolescents' homework in a way that allows the adolescents to feel autonomous over their homework management, competent to complete their homework, and maintain a positive parent–adolescent relationship, it can promote positive learning outcomes. Adolescence is considered a critical time period in which adolescents typically express more desire to freedom and autonomy but are also more academically competent and seek more support from peers (Eccles et al., 1993; Froiland, 2021; Wei et al., 2019). Nevertheless, previous research has shown that adolescents benefit from having not only their heightened need for autonomy, but also their need for competence and relatedness satisfied (Dumont et al., 2014; Katz et al., 2011).

In regard to the *quantity* of parental homework involvement, the frequency of monitoring (i.e., checking that homework is done without mistakes) and help (i.e., teaching and guiding; Otani, 2020; Pomerantz & Eaton, 2001; Silinskas et al., 2015) have been examined. Help is a more direct way to be involved with homework than monitoring is, because help requires more active participation from the parent (Silinskas et al., 2015). However, adolescents may interpret extensive direct help from parents as parental mistrust in their abilities to do homework on their own and, consequently, it may hinder the satisfaction of autonomy and competence and cause tension in the adolescent–parent relationship (Ryan & Deci, 2017; Silinskas et al., 2015). Monitoring, in turn, is a less direct way to be involved with homework than help is, because it does not require active participation from the parent (Silinskas et al., 2015). Therefore, monitoring is less likely to be perceived as control, and thus may not be as detrimental to the adolescent's autonomy, competence, and relatedness when it is compared to parental help (Ryan & Deci, 2017). However, due to the lower level of interaction with the parent, monitoring may leave adolescents' sense of relatedness unsatisfied (Ryan & Deci, 2017; Silinskas et al., 2015).

The *quality* of parental homework involvement, in turn, is typically conceptualized through parents' autonomy support and control in homework situations (Pomerantz & Grolnick, 2017). According to SDT (Ryan & Deci, 2017), autonomy-supportive parents allow adolescents to take an active role in doing homework by providing resources that make independent work possible, which is assumed to satisfy adolescents' feelings of autonomy, competence, and relatedness (Moorman & Pomerantz, 2008; Pomerantz et al., 2007). In turn, when parents are controlling, they are hindering the adolescent's opportunities to work independently by pressuring and restricting their behavior with commands and directives (Moorman & Pomerantz, 2008). One aspect of control—psychological control—has been assumed to be extremely detrimental to an adolescent's psychological needs because parental dominance and use of guilt, love withdrawal and shame when the adolescent does not meet parental standards restricts adolescents' self-expression and mastery, and increases their emotional dependence on their parents (Barber, 1996; Chorpita et al., 2016; Grolnick & Pomerantz, 2009).

Finally, the *source of initiative* of parental homework involvement refers to the extent to which parents' involvement with an adolescent's homework is adolescent initiated vs. parent initiated (Green et al., 2007; Hoover-Dempsey & Sandler, 1997). Following SDT (Ryan & Deci, 2017), when adolescents themselves request parents to get involved, it may better support their need for autonomy and give them a sense of mastery and belonging than parent-initiated involvement due to such involvement being based on their need for assistance. In contrast, when parents are involved with an adolescent's homework on their own initiative, the

adolescent may not have similar opportunities to be active, build confidence, and form positive interaction with the parent due to parental involvement being unwanted. Consequently, parent-initiated involvement may threaten the satisfaction of the adolescent's needs for autonomy, competence, and relatedness (Ryan & Deci, 2017).

Previous research concerning adolescence has shown a decrease in the quantity of parental homework involvement and in adolescents' explicit invitations for parental homework involvement (Green et al., 2007; Wei et al., 2019). Moreover, a qualitative shift from more controlling homework involvement practices towards higher support for autonomy has been observed during adolescence (Cooper et al., 2000; Gonida & Cortina, 2014; Silinskas & Kikas, 2019). It is well known that adolescents face various developmental changes, such as puberty, heightened need for autonomy, developing cognitive abilities, and identity formation, changes in school environment, such as the educational transition as well as changes in social relationships such as peer orientation (Eccles et al., 1993; Hill & Tyson, 2009). These changes in adolescents call for parents to reconsider their approach towards homework involvement. Parental homework involvement that is not attentive to the different developmental and educational changes and social changes that occur in early adolescence may threaten the satisfaction of adolescents' psychological needs which may further have detrimental effects to adolescents' motivation and achievement (Barber & Olsen, 2004; Eccles et al., 1993; Ryan & Deci, 2017). Consequently, this longitudinal study focused on the quantity (monitoring and help), quality (autonomy support, psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help) as central aspects of maternal homework involvement among adolescents facing the critical transition from primary (Grade 6) to lower secondary school (Grade 7). The focus was on mothers' homework involvement because previous research has shown that mothers have more active roles in their children's schooling than fathers do (Levin et al., 1997; Silinskas et al., 2010, 2013).

1.2. Patterns of parental homework involvement across the educational transition

Despite acknowledging the multidimensional nature of parental homework involvement, previous research has rarely applied a person-oriented approach and has rather focused on individual dimensions of homework involvement using a variable-oriented approach (Grolnick & Slowiaczek, 1994; Moroni et al., 2016). Little is known about the constellations of homework involvement practices (i.e., patterns) regarding the quantity, quality and source of initiative of homework involvement that parents show when involving themselves in adolescents' homework. In line with the typological approach of parenting styles research (Baumrind, 1966; Maccoby & Martin, 1983), parents are likely to show unique combinations of both supportive and controlling homework involvement practices (Exeler & Wild, 2003). A person-oriented approach takes the heterogeneous nature of the sample into account (Laursen & Hoff, 2006) and allows identification of different subgroups of parents who share similar patterns of homework involvement practices. Identifying these patterns is important because the way that each involvement practice supports or suppresses satisfaction of adolescents' psychological needs may depend on the presence or absence of another practice (Heberle et al., 2015; Ryan & Deci, 2017). This, in turn, may have different consequences for adolescents' motivation and achievement.

To our knowledge, only a few attempts have been made to examine parental involvement patterns. Moroni et al. (2016) found three profiles of adolescent-perceived quality of parental homework involvement among fifth-grade students, based on three dimensions of emotional support, provision of structure, and interference/control: First, the biggest profile, the *average profile* (46.7%), was characterized by average levels of all three dimensions of homework involvement; second, the *adequate profile* (44.0%) was characterized by higher-than-average

levels of emotional support and structure and lower-than-average levels of interference/control; and third, the *noninvolved profile* (9.2%) was characterized by lower-than-average levels of all three dimensions of homework involvement. Similarly, Lara and Saracostti (2019) found three clusters of *high involved* (28.9%), *medium involved* (45.8%), and *low involved* parents (25.3%) among younger second- and third-grade students based on the quantity of their involvement (i.e., involvement at home, involvement at school, and invitations parents receive from children, teachers, and schools). In addition, previous research on parenting patterns has also identified two qualitatively opposite profiles of parenting based on two dimensions (e.g., high guidance–low control, and low guidance–high control; Dwairy et al., 2013; McNamara et al., 2010) and have further found that parents may also co-express these dimensions of parenting with high frequency (Dwairy et al., 2013; Heberle et al., 2015). According to Dwairy et al. (2013), the use of supportive and controlling parenting practices at high levels may stem from parents' concern about their adolescents and from parental attempts to overcome that situation by overusing all possible methods.

Previous research on parental involvement patterns using a person-oriented approach, though scarce, has at least the following limitations. First, studies have focused on either the quantity (Lara & Saracostti, 2019) or the quality of involvement (Moroni et al., 2016) but not on both aspects. Moreover, it is not known how the source of initiative is combined with quantitative and qualitative aspects of involvement. Consequently, the first aim of this study was to investigate maternal homework involvement patterns based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help). It can be expected that, in line with previous studies (Moroni et al., 2016) and SDT (Ryan & Deci, 2017), some mothers would better support adolescents' needs for autonomy, competence, and relatedness than other mothers would by showing involvement practices, such as high levels of autonomy support combined with low levels of parent-initiated help. It may also be that mothers would even avoid any homework involvement due to fear of being overcontrolling which, in turn, may leave adolescents' psychological needs unsatisfied (Gonida & Cortina, 2014; Ryan & Deci, 2017). It was also expected that some mothers may not trust adolescents' abilities to do homework independently and would therefore be controlling and intrusive in their involvement (e.g., characterized as high levels of psychological control and parent-initiated help, and low levels of autonomy support), which would thwart the satisfaction of adolescents' psychological needs (Dwairy et al., 2013; Ryan & Deci, 2017). It may also be that some mothers may try to compensate their worry over their children by frequently using simultaneously both supportive and controlling involvement practices, such as high levels of autonomy support combined with high levels of psychological control (Barber, 1996; Dwairy et al., 2013).

Second, the previous studies did not examine homework involvement patterns longitudinally, hence there is a need for research examining how stable parental homework involvement patterns are and how likely parents are to transfer from one parental homework involvement pattern to another during the adolescence period. During the educational transition from primary to lower secondary school (in the Finnish educational system, from Grade 6 to Grade 7), adolescents experience numerous changes related to the school environment (e.g., new school subjects, teachers, peers), own development (e.g., puberty) and their social relationships (e.g., heightened need for autonomy; Eccles et al., 1993; Hill & Tyson, 2009). These changes may be reflected in parental homework involvement. For example, as a consequence of these changes, parents may be uncertain how to become involved in adolescents' homework in a way that promotes their skills and at the same time, is not perceived as controlling by the adolescents (e.g., how to provide help in the zone of adolescents' proximal development; Vygotsky, 1978). There is evidence to suggest that in middle school, parents use fewer direct and controlling involvement practices (Gonida &

Cortina, 2014; Silinskas & Kikas, 2019; Wei et al., 2019) and grant more autonomy (Cooper et al., 2000). One explanation for this could be that adolescents may invite parents to become involved in their schooling less frequently than children in primary school do (Pomerantz & Grolnick, 2017; Wei et al., 2019). On the other hand, parents may perceive their involvement as being less normative in middle school than it is in elementary school (Wei et al., 2019). It may also be that due to school-related and developmental changes, parents expect adolescents to do homework on their own and may perceive even autonomy support as being restrictive of adolescents' autonomy and independence, and consequently end up avoiding involvement (Gonida & Cortina, 2014; Hill & Tyson, 2009). In this study, we aimed to broaden our understanding of the stability and change of maternal homework involvement patterns during adolescents' transition to lower secondary school.

1.3. The role of adolescents' motivational behavior and prior achievement in parental homework involvement patterns

According to the theories of the evocative effect (Bell, 1968; Scarr & McCartney, 1983), children's characteristics play a role in the behavior of their parents. Previous variable-oriented studies have shown that adolescents' achievement as well as their motivational behavior, such as task-persistent vs. task-avoidant behavior, are significant antecedents of parental involvement (Dumont et al., 2014; Viljaranta et al., 2018). Task-avoidant behavior refers to an adolescent's tendency to lose focus when given a challenging task, which manifests itself through distractibility and giving up (Aunola et al., 2002; Onatsu-Arvilommi & Nurmi, 2000). Adolescents who avoid tasks are at risk for failing in the future and performing poorly academically (Georgiou et al., 2010; Zhang et al., 2011). Previous studies have generally shown that poorer achievement (Dumont et al., 2014; Silinskas & Kikas, 2019) and lower persistence (Viljaranta et al., 2018) are related to higher levels of intrusive and controlling parental involvement practices, whereas adolescents with higher achievement (Cooper et al., 2000; Dumont et al., 2014) and higher persistence (Dumont et al., 2012) receive more autonomy support from their parents.

Although there is variable-oriented research on the role of adolescents' academic functioning in parental involvement, to our knowledge, no previous study has examined adolescents' motivational behavior and prior achievement as antecedents of parental homework involvement patterns and related transitions during critical educational transitions. More understanding of the role of these antecedents in parental homework involvement patterns is needed because not all parents are expected to react to their child's academic functioning in a similar manner (see Hayes & Berthelsen, 2020). It is known that during and after school transitions, adolescents may experience academic and motivational decline (Barber & Olsen, 2004; Eccles et al., 1993), which may be reflected in parental homework involvement. For example, some parents may perceive adolescents' lack of persistence and academic problems as alarming, and hence they attempt to get involved in adolescents' homework using every possible method (Dwairy et al., 2013). Adolescents who have a long history of failure and poor achievement may be particularly sensitive to controlling and intrusive involvement practices due to such involvement depriving them of their inner resources, which, in turn, serves as a risk factor for future failure and poor achievement (Pomerantz et al., 2005). Consequently, focusing on the antecedents of parental homework involvement patterns may provide useful knowledge on how to identify those parents that would benefit from more knowledge and understanding of their reactions to adolescents' poor academic functioning. Thus, in this study, we examined the role of adolescents' prior achievement and task avoidance as antecedents of patterns of maternal homework involvement across the transition from primary to lower secondary school.

1.4. The present study

In this study, the following research questions were addressed. First, we examined what kind of patterns of mothers' homework involvement can be identified based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (mother-initiated vs. adolescent-initiated monitoring and help) in Grades 6 and 7. Due to the lack of previous studies including all these aspects of homework involvement, no exact hypotheses can be set. However, based on previous findings on the quantity and quality of homework involvement (Dwairy et al., 2013; Lara & Saracostti, 2019; Moroni et al., 2016), we expected that the following patterns of maternal homework involvement could be identified. First, we expected that there would be a pattern characterized by average levels of all involvement practices, which was expected to be the most typical pattern. Second, it was expected that there would be a pattern characterized by high levels of maternal autonomy support and low levels of direct and controlling involvement practices (e.g., help and psychological control). Third, we expected that there would be an opposite pattern characterized by high levels of direct and controlling involvement practices (e.g., help and psychological control) and low autonomy support. Fourth, it was expected that there would be a pattern characterized by low levels of autonomy support as well as of direct and controlling involvement practices (e.g., psychological control and help), and possibly an opposite pattern characterized by high levels of autonomy support as well as of direct and controlling involvement practices (e.g., psychological control and help).

Second, we examined the extent to which the identified patterns of maternal homework involvement change from Grade 6 to Grade 7. It was expected that the patterns would be relatively stable across the transition. Because parental direct and controlling involvement practices have been shown to decrease during adolescence (Cooper et al., 2000; Silinskas & Kikas, 2019), it was also expected that mothers characterized by high levels of autonomy support as well as of direct and controlling involvement practices, along with mothers characterized by average levels of involvement practices, would be more likely to transition to maternal pattern characterized by low levels of autonomy support, direct and controlling involvement practices.

Third, we examined the extent to which an adolescent's task avoidance in homework situations and prior achievement in Grade 6 predict maternal homework involvement patterns in Grade 6 and transitions between these patterns from Grade 6 to Grade 7. Based on variable-oriented results (Dumont et al., 2014; Viljaranta et al., 2018), it was expected that lower levels of adolescent task avoidance and higher prior achievement would be associated with a maternal pattern characterized by low levels of autonomy support as well as of direct and controlling involvement practices. In turn, higher levels of adolescent task avoidance and poorer prior achievement were expected to be related to a maternal pattern characterized by high levels of direct and controlling involvement practices as well as of low levels of autonomy support.

We controlled for the effects of the adolescents' gender on maternal homework involvement patterns due to previous research showing parental homework involvement in boys' homework being more controlling, whereas girls may receive more support from their parents (Dumont et al., 2012). Moreover, due to some findings showing that parents with higher education may be less controlling and more supportive in homework situations, mothers' educational level was controlled for (Moroni et al., 2015; Su et al., 2015).

2. Method

2.1. Participants

This study was part of a broader longitudinal study following Finnish adolescents across the transition from primary to lower secondary school. Participants came from a large sample of one age cohort from

two towns in Central Finland. The procedures were in accordance with the principles of the Helsinki Declaration on research with human subjects. Written consent to participate was collected from participants and the research plan of the project was approved by the Human Sciences Ethics Committee of the local university (February 12, 2014). A total of 848 Finnish adolescents (391 boys; mean age = 12.32 years, SD = 0.36) participated in this study in Grade 6. A total of 96.7% of these adolescents had Finnish as their mother tongue, 1.6% were bilingual, and 1.4% were other than Finnish speakers. Of these adolescents, 0.3% did not report their mother tongue. According to the [Official Statistics of Finland \(2021a\)](#), 3.6% of the population outside of the Helsinki (capital) metropolitan area were foreign-language speakers and 3.7% had a foreign background. Thus, our sample was consistent with the demographics of the Finnish population.

Mothers of the adolescents were also invited to participate in the study. Mothers received questionnaires in the mail or electronically when adolescents were in Grades 6 and 7. In Grade 6 fall, 680 mothers provided answers (mean age 41.95, SD = 5.49), and in Grade 7 fall, 665 answered. 735 mothers provided responses either in Grade 6 or in Grade 7. Of the mothers, 659 reported their own education: 2.3% had no vocational education, 1.5% had taken employment or vocational courses (minimum of 4 months), 29.0% had finished vocational upper secondary education, 23.4% had post-secondary education, 16.5% had a bachelor's or vocational college degree, 24.0% had completed university or other higher education, and 3.3% had a postgraduate degree. The sample was fairly representative of the demographics of the Finnish population ([Official Statistics of Finland, 2021b](#)).

2.2. Measures

The psychometric properties of the study variables and their Cronbach's alpha reliabilities are presented in [Table 1](#).

Quantity of maternal homework involvement (Grades 6 and 7). Questions measuring monitoring and help were adapted from [Pomerantz and Eaton \(2001\)](#) and [Pomerantz and Ruble \(1998\)](#); [Tunkkari et al. \(2021\)](#). Monitoring (e.g., "Do you check your child's homework?") and help (e.g., "Do you help or guide your child in his/her homework?") were both measured with three items using a five-point scale (1 = *never*, 5 = *always*).

Quality of maternal homework involvement (Grades 6 and 7). The quality of maternal homework involvement was measured by autonomy support and psychological control in homework situations. Mothers evaluated autonomy support with a short version of the Learning Climate Questionnaire ([Black & Deci, 2000](#); for reliability and validity, see [Yu et al., 2018](#)) consisting of six items on a five-point scale (1 = *never*, 5 = *always*; e.g., "I try to understand the child's point of view"). Mothers rated psychological control with two items using a five-point scale (1 = *never*, 5 = *always*; e.g., "I show how disappointed I am if the child has not done his/her homework/gets a bad grade on a test"; [Tunkkari et al., 2021](#)).

Source of initiative (Grades 6 and 7). The source of initiative was measured by mother-reported monitoring and help adapted from [Pomerantz and Ruble \(1998\)](#). The source of initiated monitoring (e.g., "On whose initiative do you check your child's homework?") and help (e.g., "On whose initiative do you help or guide your child in his/her homework?") were both measured with three items using a six-point scale (0 = *from no one*, 1 = *always from the child*, 2 = *mostly from the child*, 3 = *sometimes from the child and sometimes from me*, 4 = *mostly from me*, 5 = *always from me*; [Tunkkari et al., 2021](#)).

Adolescents' task avoidance in homework situations (Grade 6). Mothers rated adolescents' task avoidance in homework situations using the Behavioral Strategy Rating Scale ([Aunola et al., 2000](#); for validity see [Zhang et al., 2011](#)). The rating scale consists of five statements on a five-point scale (1 = *never*, 5 = *always*; e.g., "Does the child give up easily?").

Adolescents' academic achievement. Adolescents' academic achievement was based on GPA across all school subjects (range = 5 to

Table 1
Descriptive statistics and Pearson correlations of study variables.

	<i>n</i>	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Adolescent GPA, T0	694	8.25	0.66														
2 Adolescent Task avoidance, T1	661	2.22	0.85	0.89	-0.51***												
3 Monitoring, T1	661	2.89	0.87	0.83	-0.23***	0.18***											
4 Monitoring, T2	663	2.58	0.85	0.82	-0.26***	0.18***	0.66***										
5 Help, T1	661	2.96	0.62	0.73	-0.26***	0.18***	0.58***	0.44***									
6 Help, T2	663	2.85	0.58	0.71	-0.23***	0.22***	0.47***	0.56***	0.68***								
7 Autonomy support, T1	659	3.87	0.48	0.74	-0.37***	-0.01	-0.37***	-0.04	0.01	-0.06							
8 Autonomy support, T2	661	4.00	0.49	0.77	-0.22***	-0.37***	-0.02	-0.07	0.01	-0.06	0.53***						
9 Psychological control, T1	660	2.29	0.84	0.55	-0.41***	0.54***	0.25	0.24***	0.17***	0.17***	-0.28***	-0.33***					
10 Psychological control, T2	662	2.35	0.84	0.61	-0.36***	0.49***	0.17***	0.26***	0.16***	0.21***	-0.28***	-0.38***	0.64***				
11 Mother vs. adolescent initiated monitoring, T1	657	3.02	1.35	0.80	-0.31***	0.27***	0.60	0.38***	0.28***	0.21***	-0.11**	-0.07	0.36***	0.24***			
12 Mother vs. adolescent initiated monitoring, T2	661	2.48	1.42	0.81	-0.29***	0.24***	0.48***	0.67***	0.24***	0.34***	-0.07	-0.11**	0.31***	0.35***	0.50***		
13 Mother vs. adolescent initiated help, T1	659	2.31	0.88	0.77	-0.34***	0.29***	0.45***	0.37***	0.49***	0.39***	-0.10**	-0.12**	0.36***	0.30***	0.55***	0.40***	
14 Mother vs. adolescent initiated help, T2	662	2.15	0.91	0.80	-0.30***	0.28***	0.37***	0.46***	0.33***	0.47***	-0.10*	-0.16***	0.32***	0.34***	0.37***	0.60***	0.55***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. T0 = Grade 5, spring, T1 = Grade 6, fall, T2 = Grade 7, fall.

10) in the spring of Grade 5 (closest proxy of Grade 6 fall) as gathered from registers.

2.3. Data analysis

All measures were standardized to have them on the same scale. The analyses were then carried out along the following steps. First, to answer the first and second research questions, we used latent transition analysis (LTA) to examine the prevalence of latent maternal homework involvement patterns and transitions between maternal homework involvement patterns across Grade 6 to Grade 7 based on the quantity (monitoring and help), quality (autonomy support and psychological control) and source of initiative (mother-initiated vs. adolescent-initiated monitoring and help). In LTAs, the structure of the patterns was restricted to be the same for both measurement points by fixing the intercepts to be equal across time. This made it possible to reliably examine the prevalence of latent patterns at different time points and interpret transitions between these patterns (Nylund, 2007). A large number of random starts were used to avoid local maxima and to increase the validity of the found patterns. Model estimations were done gradually, starting with a one-pattern solution and then increasing the number of patterns step by step to find the best model. To compare different solutions, we examined the interpretability of the solutions, fit indices and latent group sizes. For the fit indices, we used the following criteria: the log-likelihood value (Log L), the Bayesian information criterion (BIC), the sample-size adjusted Bayesian information criterion (aBIC), the Parametric Bootstrapped Likelihood Ratio Test (BLRT), and entropy. A higher log-likelihood value and lower values of BIC and aBIC indicate a better model, whereas a significant BLRT value indicates a higher number of groups. Entropy values range from 0 to 1, with 1 indicating greater classification certainty. Previous findings have shown that BLRT and BIC are effective when deciding the right number of latent groups (Tolvanen, 2007).

Finally, to answer the third research question, multinomial logistic regression was used to examine the extent to which adolescents' task avoidance and prior achievement predicted maternal homework involvement patterns in Grade 6 and transitions between patterns from Grades 6 to 7. Adolescents' task avoidance and achievement were added to the LTA model to predict patterns and changes in patterns across Grade 6 to Grade 7. The effects of the adolescents' gender and mothers' education were controlled for.

All the analyses were carried out using the Mplus statistical package, version 8.4 (Muthén & Muthén, 1998–2017). All models were estimated using maximum likelihood estimation with robust standard errors (MLR).

3. Results

3.1. Identification of maternal homework involvement patterns and their change from Grade 6 to Grade 7

To answer our first and second research questions, LTA was utilized. The fit indices of the LTA models and their group sizes are presented in Table 2. The fit indices suggested that the four-pattern solution fit the data best. In addition, because two of the latent patterns in the five-pattern solution were relatively small and theoretically hard to justify, the four-pattern solution was considered the most appropriate model.

Based on the LTA analysis, the following four maternal homework involvement patterns were identified (Fig. 1). The first, *averagely involved pattern* (39% Grade 6, 36% Grade 7), was characterized by an average level of all aspects of maternal homework involvement. The second, *psychologically controlling and intrusive pattern* (28% Grade 6, 26% Grade 7), was characterized by low maternal autonomy support and high monitoring, help, and psychological control, and high initiative from mothers in monitoring and help. The third, *noninvolved pattern* (22% Grade 6, 28% Grade 7), was characterized by low monitoring,

Table 2
Fit indices for LTA models across Grade 6 to Grade 7 (selected solution in bold).

Number of patterns	Log L	aBIC	BIC	Entropy	Group sizes in Grade 6	Group sizes in Grade 7
1	–	–	–	–	–	–
2	–10355.13	20802.72	20888.45	0.813	446, 213	401, 258
3	–10130.53	20384.35	20498.66	0.809	353, 205, 177	325, 199, 211
4	–10010.39	20195.42	20357.36	0.810	213, 165, 284, 73	205, 195, 265, 70
5	–10035.88	20246.41	20408.35	0.758	179, 345, 106, 25, 80	166, 286, 196, 32, 55

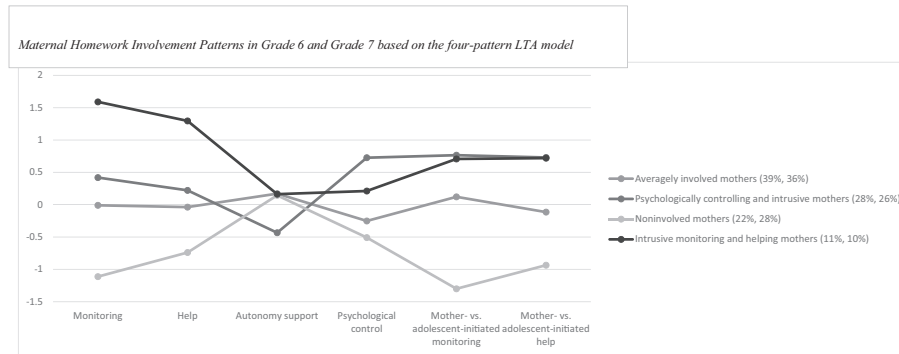


Fig. 1. Maternal homework involvement patterns in Grade 6 and Grade 7 based on the four-pattern LTA model.

help, psychological control, and initiative from mothers in monitoring and help, and average levels of autonomy support. Finally, the *intrusive monitoring and helping pattern* (11% Grade 6, 10% Grade 7), was characterized by high monitoring, help, and initiative from mothers in monitoring and help, and average levels of psychological control and autonomy support.

Latent transition probabilities are presented in Table 3. Stabilities and transitions in patterns between Grades 6 and 7 are presented in Fig. 2. Overall, maternal homework involvement patterns were quite stable across Grade 6 to Grade 7 (Table 3). The psychologically controlling and intrusive pattern was the most stable pattern with a 91% chance of remaining in that pattern across Grades 6 to 7. In contrast, the averagely involved pattern and noninvolved pattern were the least stable patterns across Grades 6 to 7 with a 77% and 75% chance of remaining in those particular patterns. Despite the strong stabilities, some statistically significant changes in patterns were also detected (Fig. 2). For example, mothers in the noninvolved pattern in Grade 6 had the highest likelihood to transition to the averagely involved pattern in

Table 3
Latent transition probabilities of the four-pattern LTA model from Grade 6 to Grade 7.

Grade 7		Grade 6			
Grade 6	Averagely involved mothers	Psychologically controlling and intrusive mothers	Noninvolved mothers	Intrusive monitoring and helping mothers	
Averagely involved mothers	0.77	0.02	0.22	0.01	
Psychologically controlling and intrusive mothers	0.01	0.91	0.06	0.02	
Noninvolved mothers	0.24	0.00	0.75	0.01	
Intrusive monitoring and helping mothers	0.07	0.00	0.05	0.88	

Note. Bold values indicate probability of remaining in that particular pattern from Grade 6 to Grade 7.

Grade 7. In turn, mothers in the averagely involved pattern in Grade 6 had the highest likelihood to transition to the noninvolved pattern in Grade 7.

3.2. The role of adolescents' task avoidance and prior achievement in maternal homework involvement patterns

Finally, to answer the third research question, adolescents' task-avoidance and prior achievement were added as predictors in the final LTA model to predict homework involvement pattern membership probability in Grade 6 as well as the transition probabilities between different patterns from Grade 6 to Grade 7. Betas and odds ratios with 95% confidence intervals of the multinomial logistic regression analyses are presented in Table 4. The results showed first that adolescents' task avoidance predicted maternal involvement patterns in Grade 6: The more adolescents showed task avoidance in homework situations, the more likely their mothers were to be in the psychologically controlling and intrusive pattern or in the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. Second, adolescents' task-avoidance predicted one maternal pattern longitudinally from Grade 6 to Grade 7: The more adolescents showed task avoidance in homework situations, the more likely their mothers were to stay in the intrusive monitoring and helping pattern from Grade 6 to Grade 7 compared to the noninvolved pattern.

The results also showed that adolescents' prior achievement predicted maternal involvement patterns in Grade 6 (Table 4). First, the better adolescents achieved, the more likely their mothers were to be in the noninvolved pattern in Grade 6 relative to the averagely involved pattern. Second, the better adolescents achieved, the less likely their mothers were to be in the intrusive monitoring and helping pattern in Grade 6 relative to the noninvolved pattern. Finally, adolescents' prior achievement predicted the maternal pattern longitudinally from Grade 6 to Grade 7: The better adolescents achieved, the less likely their mothers were to stay in the psychologically controlling and intrusive pattern longitudinally from Grade 6 to Grade 7 relative to the noninvolved pattern.

Regarding control factors (mothers' education and adolescent gender), only one significant result was found: Mothers with boys were more likely to show an intrusive monitoring and helping pattern in Grade 6 than they were to show a noninvolved pattern ($b = 1.23, SE =$

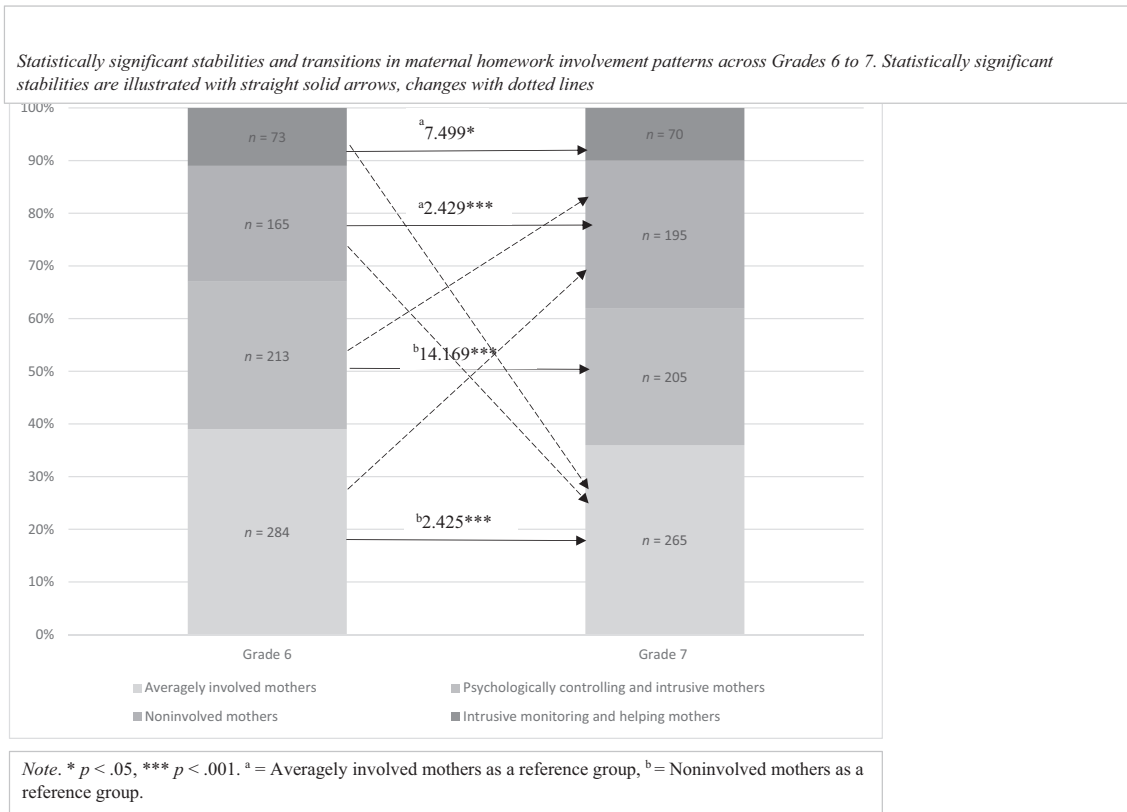


Fig. 2. Statistically significant stabilities and transitions in maternal homework involvement patterns across Grades 6 to 7. Statistically significant stabilities are illustrated with straight solid arrows, changes with dotted lines.

Note. * $p < .05$, *** $p < .001$. ^a = Averagely involved mothers as a reference group, ^b = Noninvolved mothers as a reference group.

Table 4

Multinomial logistic regression analyses with adolescent task avoidance and prior academic achievement as predictors of maternal homework involvement patterns in Grade 6 and transitions between patterns from Grade 6 to Grade 7. Statistically significant results are bolded.

Predictor	Averagely involved mothers		Noninvolved mothers		Psychologically controlling and intrusive mothers		Intrusive monitoring and helping mothers	
	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI	b (SE)	OR with 95% CI
Grade 6								
Adolescent task avoidance	^b -0.07 (0.33)	0.93 (0.49, 1.76)	^a 0.07 (0.35)	1.07 (0.54, 2.13)	^b1.38***	3.97 (1.89, 8.37)	^b1.52***	4.58 (2.13, 9.82)
Adolescent prior academic achievement	^b-0.68**	0.51 (0.33, 0.78)	^a0.68**	1.98 (1.29, 3.03)	^b -0.49 ⁺	0.61 (0.37, 1.03)	^b-1.18***	0.31 (0.19, 0.51)
From Grade 6 to Grade 7								
Adolescent task avoidance	^b 0.18 (0.32)	1.20 (0.65, 2.21)	^a -0.21 (0.36)	0.81 (0.40, 1.66)	^b 1.64 (1.03)	5.15 (0.68, 38.85)	^b1.88* (0.96)	6.56 (1.01, 42.83)
Adolescent prior academic achievement	^b -0.10 (0.30)	0.91 (0.51, 1.62)	^a 0.08 (0.31)	1.09 (0.60, 1.98)	^b-1.69*	0.19 (0.04, 0.78)	^b -1.04 (0.79)	0.35 (0.08, 1.65)

Note. ⁺ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$. ^a = Averagely involved mothers as a reference group, ^b = Noninvolved mothers as a reference group.

0.46, $p < .01$, OR = 3.43; 95% CI [1.40, 8.39]).

4. Discussion

Even though parental involvement is a multifaceted construct (Grolnick & Slowiaczek, 1994), previous studies have rarely examined different combinations of homework involvement dimensions. We aimed to identify patterns of maternal homework involvement based on the quantity (monitoring and help), quality (autonomy support and psychological control), and source of initiative (adolescent-initiated vs. mother-initiated monitoring and help), and found four relatively stable

maternal homework involvement patterns among the mothers of Finnish sixth- and seventh-grade adolescents: averagely involved, psychologically controlling and intrusive, noninvolved, and intrusive monitoring and helping. The results showed further that the higher adolescents' task avoidance was, the more likely their mothers were to demonstrate the psychologically controlling and intrusive pattern or the intrusive monitoring and helping pattern than they were the noninvolved pattern. In contrast, the better achievement adolescents showed, the more likely their mothers were to demonstrate the noninvolved pattern instead of the intrusive monitoring and helping pattern or the psychologically controlling and intrusive pattern. These results suggest that mothers

react somewhat differently to adolescents' motivational and academic problems. Taken together, some mothers may benefit from more knowledge of how to be involved in adolescents' homework in a more supportive manner during the educational transition.

The aim of our study was to identify what kind of patterns mothers show in their homework involvement during the transition to lower secondary school. In addition, the stability and change in maternal homework involvement patterns and the extent to which adolescents' task avoidance and prior achievement predicted the stability and change between these patterns across the transition was examined. In line with our expectations and previous findings (Lara & Saracosti, 2019; Moroni et al., 2016), we found a relatively large pattern, from 36% (Grade 7) to 39% (Grade 6), of mothers with average levels of all involvement practices. These results support previous findings (Exeler & Wild, 2003) by suggesting that the majority of mothers use similarly both supportive and controlling involvement practices when involving themselves in adolescents' homework. Second, in line with previous studies (Lara & Saracosti, 2019; Moroni et al., 2016) and our expectations, we found a pattern of noninvolved mothers (22% in Grade 6 and 28% in Grade 7) characterized by low levels of monitoring, help, psychological control, and initiative from mothers in monitoring and help, and average levels of autonomy support. The main difference between these patterns lies in the relationship between autonomy supportive and controlling involvement practices: While the averagely involved mothers used similarly both autonomy support and self-initiated and controlling involvement practices, the noninvolved mothers exhibited more autonomy support than self-initiated and controlling involvement practices. Following SDT (Ryan & Deci, 2017), mothers who are more autonomy supportive than controlling in homework situations may better satisfy adolescents' needs to be autonomous, competent, and connected with others. In turn, average levels of maternal self-initiated and controlling involvement practices may, however, threaten the satisfaction of adolescents' needs for autonomy, competence, and relatedness when they are accompanied with only average levels of autonomy support (Moroni et al., 2016; Ryan & Deci, 2017).

The results showed further that adolescents' prior achievement predicted the mothers' averagely involved pattern and the noninvolved pattern but only before the educational transition. Consistent with our expectations and previous variable-oriented studies (Cooper et al., 2000; Dumont et al., 2014), the higher adolescents' achievement was, the more likely their mothers were to show the noninvolved pattern than the averagely involved pattern in Grade 6. This would suggest that when adolescents are achieving well in primary school, mothers trust in their abilities to do homework independently and are less likely to exhibit high controlling and self-initiated involvement practices and more likely to support adolescents' autonomy (Cooper et al., 2000; Viljaranta et al., 2018). Even though noninvolved mothers showed the lowest likelihood to exhibit similar behaviors before and after the transition (i.e., stability), the prevalence of this pattern somewhat increased from Grade 6 (22%) to Grade 7 (28%). This can be explained by the fact that, following our expectations and variable-oriented research (Cooper et al., 2000; Gonida & Cortina, 2014), some mothers from the averagely involved pattern in Grade 6 moved to the noninvolved pattern in Grade 7. Interestingly, mothers in the averagely involved pattern in Grade 6 had approximately a similar likelihood to move to the noninvolved pattern in Grade 7, which might suggest that these patterns are somewhat relative to one another. There may be several reasons for these transitions. For example, mothers who transition to the noninvolved pattern may think that adolescents should take care of their homework by themselves or may be concerned that their involvement is perceived as controlling by the adolescents. Consequently, the mothers may decrease their self-initiated and direct involvement practices and provide more autonomy when adolescents move from primary to lower secondary school (Silinskas et al., 2015; Silinskas & Kikas, 2019). On the other hand, adolescents may also show fewer invitations for maternal homework involvement or mothers themselves may perceive fewer

normative expectations for homework involvement, which may also decrease their self-initiated and direct involvement practices (Green et al., 2007; Wei et al., 2019). In turn, the mothers who transition to the averagely involved pattern may have lower beliefs in adolescents' abilities to do more difficult homework assignments independently in lower secondary school (Gonida & Cortina, 2014; Hyde et al., 2006) and may react to this by somewhat increasing their controlling and self-initiated involvement.

We also found two highly stable and essentially different controlling and intrusive maternal homework involvement patterns from Grade 6 to Grade 7. Consistent with our expectations and previous findings of parenting patterns (Dwairy et al., 2013), the third pattern we found, called psychologically controlling and intrusive mothers (28% in Grade 6 and 26% in Grade 7), was characterized by high levels of monitoring, help, psychological control, and high initiative from mothers in monitoring and help alongside low levels of autonomy support. Furthermore, the fourth pattern of intrusive monitoring and helping mothers (11% in Grade 6 and 10% in Grade 7) was characterized by high levels of monitoring, help, and initiative from mothers in monitoring and help, and average levels of psychological control and autonomy support. The main difference between these two patterns lies in the level of psychological control and autonomy support: The psychologically controlling and intrusive mothers were overusing dominating, pressuring, and self-initiated involvement practices and, at the same time, providing very little support for adolescents' autonomy. The intrusive monitoring and helping mothers, in turn, were highly monitoring and were helping adolescents with their homework on their own initiative but without highly intruding on adolescents' psychological world but were nevertheless providing some support for adolescents' autonomy. One possible explanation for the differential role of psychological control in these maternal homework involvement patterns may be related to mothers' parenting style: Mothers who exhibit high levels of psychological control in homework situations may also be more psychologically controlling in other situations (Darling & Steinberg, 1993). Following SDT (Ryan & Deci, 2017), high self-initiated and psychologically controlling involvement practices together with low autonomy support may be particularly detrimental for adolescents' needs for autonomy, competence, and relatedness due to such involvement practices restricting their self-expression, initiative, and sense of mastery and increasing their emotional dependence on their mother (Barber, 1996; Chorpita et al., 2016; Grolnick & Pomerantz, 2009). By contrast, mothers who are highly monitoring and helping adolescents with their homework by their own initiative without high intrusion on adolescents' psychological world, may nevertheless, despite providing some level of autonomy support, threaten adolescents' initiative, imply mothers' mistrust in their abilities, and cause friction in the adolescent–mother relationship which, in turn, may lead to adolescents' decreased sense of autonomy, competence, and relatedness (Pomerantz & Grolnick, 2017; Ryan & Deci, 2017; Soenens & Vansteenkiste, 2010).

Overall, the results showed that the psychologically controlling and intrusive pattern and the intrusive monitoring and helping pattern were highly stable across the transition and that these stabilities were predicted by adolescents' task avoidance and prior achievement. Consistent with our expectations and previous variable-oriented studies (Dumont et al., 2014; Viljaranta et al., 2018), the higher adolescents' task avoidance was, the more likely their mothers were to display the psychologically controlling and intrusive pattern in Grade 6 or the intrusive monitoring and helping pattern across the transition than the noninvolved pattern. These results would indicate that mothers respond to adolescents' lack of persistence in a somewhat different manner (see also Hayes & Berthelsen, 2020). Mothers who exhibit the psychologically controlling and intrusive pattern may perceive that adolescents are not putting enough effort into their homework, which they respond to by pressuring and expressing their disappointment in the interactions with their children along with demonstrating high self-initiated monitoring and help (Barber, 1996; Dumont et al., 2014). In turn, mothers who

show the intrusive monitoring and helping pattern longitudinally may perceive adolescents' lack of persistence as a sign of inability, which they respond to by utilizing high self-initiated monitoring and help (Kikas & Silinskas, 2016).

Moreover, the results showed, consistent with previous findings (Dumont et al., 2014; Silinskas & Kikas, 2019), that the poorer adolescents' achievement was, the more likely their mothers were to demonstrate the intrusive monitoring and helping pattern in Grade 6 or the psychologically controlling and intrusive pattern across the transition than the noninvolved pattern. These results can be well understood because, at the mean level, mothers in the psychologically controlling and intrusive pattern had adolescents who achieved more poorly in Grade 6 compared with adolescents whose mothers showed the intrusive monitoring and helping pattern. Overall, these findings would suggest that mothers of low-achieving adolescents may have been worried about their children's performance and were therefore more likely to apply either high self-initiated monitoring and help or high psychological control and self-initiated involvement longitudinally (Grolnick, 2003; Silinskas et al., 2015).

Despite high stabilities, some mothers in the psychologically controlling and intrusive pattern and in the intrusive monitoring and helping pattern decreased their high controlling and self-initiated involvement practices after the educational transition. To be more specific, a few mothers from the psychologically controlling and intrusive pattern in Grade 6 moved to the noninvolved pattern in Grade 7. Similar movements were detected from the intrusive monitoring and helping pattern in Grade 6 to the averagely involved pattern in Grade 7. These results would suggest that after the school transition, some mothers may become more sensitive to adolescents' developmental needs (Eccles et al., 1993) and support adolescents' heightened need for autonomy (Ryan & Deci, 2017).

4.1. Limitations and future directions

When interpreting the results of this study, there are some limitations that should be taken into account. First, we examined patterns of homework involvement only among mothers. In future studies, it would be advisable to also investigate fathers' homework involvement patterns as well as to examine possible differences in the patterns of maternal and paternal homework involvement. Second, homework involvement measures were based on mothers' perceptions because only mother-rated quantity, quality, and source of initiative measures were available. There is some evidence to suggest that mothers and adolescents experience the quality of homework involvement differently (Cheung et al., 2016; Su et al., 2015). As a consequence, future studies should consider using both adolescents' and parents' perceptions in homework involvement patterns. Third, the influence of mothers' marital status was not controlled for in the analyses because such information was not available. Thus, future studies should consider controlling the effects of contextual factors on mothers' homework involvement patterns (see Belsky, 1984). Fourth, we studied maternal homework involvement patterns in a Finnish educational and cultural context, which should be taken into account when generalizing these results to other countries and school systems. Fifth, we did not examine the achievement-related and motivational outcomes of maternal homework involvement patterns. Due to previous research showing mixed results for the significance of parental homework involvement especially in the adolescence period (Hill & Tyson, 2009; Patall et al., 2008), more studies are needed to increase understanding of the effects of maternal homework involvement patterns on children's and adolescents' motivation and achievement. In this study, maternal homework involvement patterns were examined during the educational transition to lower secondary school. We assume mothers have developed their involvement patterns during earlier primary school years. By following maternal homework involvement patterns over a longer period, more changes in patterns may be observed.

4.2. Conclusions and practical implications

Despite its limitations, this study provided novel understanding of the patterns of maternal homework involvement during adolescents' educational transition. Based on three central aspects of homework involvement (i.e., the quantity, quality, and source of initiative), the results identified four relatively stable maternal homework involvement patterns in Grades 6 and 7, which would suggest that the majority of the mothers use similar combinations of supportive and controlling involvement practices before and after the transition. The results of this study add to variable-oriented research by showing that mothers react somewhat differently to adolescents' lack of persistence and poor achievement and that some of these maternal behaviors are more stable than others.

The results of the present study suggest that mothers would benefit from knowledge and concrete tools on how to support adolescents in an optimal way during the transition to lower secondary school. These would include being sensitive and responsive to adolescents' developmental challenges and satisfaction of the psychological needs. In practice, approaching situations in an autonomy-supportive manner could be recommended (see Moè et al., 2018; Soenens & Vansteenkiste, 2010). In addition, as mothers seem to be responsive to adolescents' characteristics, more support should be provided to mothers whose adolescents are experiencing motivational and academic struggles. Consequently, strong family-school partnership between parents and school personnel (teachers, school psychologists, and counselors) may prove to be useful when trying to increase mothers' knowledge of how to provide optimal assistance with homework during the educational transition (Harris & Goodall, 2008).

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Declaration of competing interest

None.

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