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ABSTRACT

This research examined the joint effects of parenting and the temperamental characteristics of children on their social-emotional development during their early school years. Three studies, focusing on different aspects of social-emotional development as well as on different temperamental characteristics, were carried out. The first study investigated the extent to which mothers' and fathers' parenting styles differently impact their children's social-emotional development, based on the children's tendency to show signs of social withdrawal. The second study focused on the different impacts of parenting styles on children's emotional expression, depending on the children's temperament type. The third study examined the different impacts of parenting styles on children's development of pro-social behaviors among shy and non-shy children. Three longitudinal Finnish data sets were used: 1) 378 children and their parents, followed from Grades 1 to 3; 2) 153 first-grade children and their parents, followed through the first grade; and 3) 200 children and their parents followed from 3 years of age to Grade 3. The results showed, first, that, during the transition to primary school, socially withdrawn, shy, or inhibited children overall benefited from parental—particularly maternal—affection more than other children in terms of their social and emotional development. Second, children with difficult temperaments were found to benefit from maternal behavioral control more than others in terms of decreased negative emotions during Grade 1. Third, although maternal psychological control increased first graders' negative emotions independently of temperament type, socially withdrawn children suffered more under parental psychological control than non-withdrawn children in terms of increased internalizing problem behaviors. Forth, interestingly, among children showing signs of social withdrawal, maternal psychological control was positively associated with pro-social skills and negatively with externalizing problem behaviors. Overall, the results suggested that parenting styles play a role in children's social-emotional development, particularly among temperamentally vulnerable children, such as those showing signs of social withdrawal, shyness, or difficult or inhibited temperament.

Keywords: parenting styles, social-emotional development, social withdrawal, temperament types, shyness, diathesis-stress model, differential susceptibility model, goodness-of-fit.

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TIIVISTELMÄ (FINNISH ABSTRACT)

Tutkimuksessa selvitettiin äitien ja isien vanhemmuustyylien ja lapsen temperamenttipiirteiden yhteisvaikutuksia lapsen sosioemotionaalisessa kehityksessä varhaisten kouluvuosien aikana. Tutkimus koostui kolmesta osatutkimuksesta, joissa lähestyttiin lasten sosioemotionaalista kehitystä ja temperamenttia eri näkökulmista. Ensimmäisessä osatutkimuksessa selvitettiin, missä määrin äitien ja isien vanhemmuustyylien yhteydet lasten sisään ja ulospäin suuntautuvaan ongelmakäyttäytymiseen ja prososiaaliseen käyttäytymiseen ensimmäisten kouluvuosien aikana ovat erilaisia sosiaalisesti vetäytyvillä lapsilla kuin muilla. Toisessa osatutkimuksessa tarkasteltiin, missä määrin vanhemmuustyylien vaikutukset lasten positiivisten ja negatiivisten tunteiden lisääntymiseen tai vähentymiseen lapsen ensimmäisen kouluvuoden aikana ovat erilaisia riippuen lapsen temperamenttityypistä. Viimeisessä osatutkimuksessa tutkittiin, missä määrin vanhemmuustyylit vaikuttavat lasten pro-sosiaalisten taitojen kehitykseen kouluun siirryttäessä eri tavoin ujoilla lapsilla verrattaessa muihin lapsiin. Tutkimuksissa käytettiin kolmea suomalaista pitkittäistutkimusaineistoa. Ensimmäisessä tutkimuksessa tutkittavina olivat 378 lasta vanhempineen. Tietoa kerättiin peruskoulun ensimmäiseltä kolmannelle luokalle. Toisessa tutkimuksessa seurattavana oli 153 ensimmäisellä koululuokalla olevaa lasta vanhempineen. Tietoa kerättiin lasten ensimmäisen kouluvuoden ajan. Kolmannessa tutkimuksessa seurattiin 200 lasta vanhempineen lasten kolmannesta ikävuodesta kolmannelle luokalle. Tulokset osoittivat ensinnäkin, että sosiaalisesti vetäytyvät, ujot ja estyneet lapset hyötyivät koulun alkuvuosina sosiaalisen ja emotionaalisen kehityksensä näkökulmasta muita enemmän vanhempien ja etenkin äitien osoittamasta lämpimyydestä ja tuesta (ja näin ollen olivat myös muita alttiimpia lämpimyyden puutteen negatiivisille vaikutuksille). Toiseksi, temperamentiltaan haastavat lapset hyötyivät 1. luokalla muita enemmän äidin käyttämästä behavioraalisesta kontrollista hyödyn näkyessä negatiivisten tunteiden vähenemisenä ensimmäisen kouluvuoden aikana. Kolmanneksi, äidin käyttämä psykologinen kontrolli oli yhteydessä lasten lisääntyneisiin negatiivisiin tunteisiin 1. luokan kuluessa lapsen temperamentista riippumatta. Sisäänpäin suuntautuneeseen ongelmakäyttäytymiseen äitien ja isien käyttämä psykologinen kontrolli oli voimakkaammin yhteydessä sosiaalisesti vetäytyvillä lapsilla kuin muilla. Yllättäen äidin käyttämä suurempi psykologinen kontrolli oli sosiaalisesti vetäytyvillä lapsilla yhteydessä myös vähäisempään ulospäin suuntautuneeseen ongelmakäyttäytymiseen ja runsaampaan prososiaaliseen käyttäytymiseen. Tutkimuksen tulokset antavat viitteitä siitä, että vanhemmuustyylit ovat yhteydessä lasten sosioemotionaaliseen kehitykseen erityisesti lapsen ollessa temperamentiltaan vetäytyvä, ujo tai haastava.

Avainsanat: vanhemmuustyylit, sosioemotionaalinen kehitys, sosiaalinen vetäytyminen, temperamentti, ujous.

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LIST OF ORIGINAL PUBLICATIONS

I   Zarra-Nezhad, M., Kiuru, N., Aunola, K., Zarra-Nezhad, M., Ahonen, T., Poikkeus, A.-M., Lerkkanen, M.-K., & Nurmi, J.-E. (2014). Social withdrawal in children moderates the association between parenting styles and the children's own socioemotional development. *Journal of Child Psychology and Psychiatry, 55*, 1260–1269.

II Zarra-Nezhad, M., Aunola, K., Kiuru, N., Mullola, S., & Moazami-Goodarzi, A. (2015). Parenting styles and children's emotional development during the first grade: The moderating role of child temperament. *Journal of Psychology and Psychotherapy, 5*: 206. doi: 10.4172/2161-0487.1000206.

III Zarra-Nezhad, M., Moazami-Goodarzi, A., Nurmi, J.-E., Eklund, K., Ahonen, T., & Aunola, K. (2016). Children's shyness moderates the associations between parenting behavior and the development of children's pro-social behavior. Submitted manuscript.

Taking into account the instructions given and comments made by the coauthors, the author of the present thesis wrote the original research plan, conducted the most part of the statistical analyses on the available data sets, and wrote the reports of the three publications.

TABLES

CONTENTS

1   INTRODUCTION

In adaptive social-emotional development, children acquire various skills, behaviors, and beliefs that help them to function effectively in social interactions (Halberstadt, Denham, & Dunsmore, 2001). These skills include, for example, the ability to understand emotional signals and others' feelings and the ability and willingness to share, help, and co-operate with others (Eisenberg & Fabes, 1998; Saxton, 2010). Middle childhood is an important developmental period for children's social-emotional development. This is the time when children learn to cooperate with their peers and adults, are introduced to new social roles, and become involved in new activities (Higgins & Parsons, 1983). Children who do not master the required skills in these new settings are more likely to develop interpersonal and emotional problems (Eccles, 1999). This developmental period also involves children's transition to elementary school and is a crucial period for examining social and emotional development, as children begin to spend more time with peers, and the various demands for social interaction increase (Coplan & Arbeau, 2008).

Children's temperamental characteristics have been shown to play a role in their social-emotional development (Rothbart, 2007). For example, social inhibition, that is, shyness, has been shown to predict low levels of pro-social behaviors (Hay & Pawlby, 2003; Howes & Phillipsen, 1998) and higher levels of anxiety (e.g., Prior, Smart, Sanson, & Oberklaid, 2000; Schwartz, Snidman, & Kagan, 1999). Temperamental negative reactivity, evidenced as a tendency to show irritability, negative mood, and high-intensity negative reactions, in turn, has been shown to be related to conduct problems (Sanson, Hemphill, & Smart, 2004).

Apart from the child's characteristics, the family environment forms an important context for children's social-emotional development (Hart, Newell, & Olsen, 2003). Parents interact with their children and help them regulate their emotions, affect, and morality. Parents also monitor and manage children's interpersonal relationships, stimulate them to engage with and understand their environment, and provide them opportunities to observe, imitate, and learn (Bornstein, 2001). Overall, warm, responsive and supportive parenting as well as confrontive control (i.e., control that aims to restrain the child's potentially

disruptive agentic expression; Baumrind, 2013, p. 26) that does not violate the child's sense of autonomy have been found to be related to optimal child development, evidenced by the child's good emotion regulation and social skills (Hart et al., 2003). In turn, lack of support and harsh or psychologically intrusive control are related to various forms of problems in social-emotional functioning, such as problems with peers, depression, anxiety, and internalized distress (Barber, 1996).

Although there is substantial research on the child and parenting correlates of adaptive and maladaptive social and emotional development, only few attempts have been made to specify the possible joint effects of the child temperamental characteristics and parenting on children's development (e.g., Gallagher, 2002; Hastings, Rubin, & DeRose, 2005, Williams et al., 2009). Consequently, little is known about whether different children, depending on particular temperamental characteristics, are more susceptible than others to different kinds of parenting in terms of their social-emotional development (Barber, 1992; Belsky & Pluess, 2009). This is unfortunate, because such understanding is important for the development of effective preventive programs for children at risk for maladaptive social-emotional development. Temperament has been defined as biological, present in early childhood, and stable but flexible in the presence of positive parenting (Rothbart, 2004). Thus, it is important to study temperamental characteristics as possible moderators of the associations between parenting and child outcomes (for a review, see Gallagher, 2002).

The focus of the present research was on the joint effects of the child temperamental characteristics and parenting on children's social-emotional development during the primary school years, which constitute a period of rapid growth and of vulnerability. Social-emotional development was operationalized in terms of pro-social behavior and positive daily emotions (as the adaptive side of development) and internal and external problem behaviors and negative daily emotions (as the maladaptive side of development).

1.1 Social-emotional development during the transition to primary school

The term social-emotional development has been used to refer to the development of social and emotional skills and abilities that enable the child to function effectively in social interactions and develop satisfying and rewarding relationships with others (Berg, 2011). These skills and abilities include, for example, the ability to manage the range of positive and negative emotions, the ability to produce appropriate emotion signals and understand others' emotional signals and feelings (Saarni, 1999), and ability to develop satisfying and rewarding relationships with others (Berg, 2011; Halberstadt et al., 2001; Rose-Krasnor, 1997). Adaptive social-emotional development is evidenced in children's ability to function effectively in social interactions, usually with other children (Halber-

stadt et al., 2001; Berg, 2011). Effective functioning in social interactions is often defined in terms of pro-social behavior, including, for example, social behavior characterized by helping, sharing, co-operating, and volunteering. Pro-social children are relatively well-adjusted and have better peer relationships than children with low pro-social behavior (e.g., Clark & Ladd, 2000; Knafo, & Plomin, 2006). Maladaptive social-emotional development, on the other hand, is evident in various forms of problem behaviors (Kovacs & Devlin, 1998). Externalizing problem behaviors refer to behavioral problems such as conduct disorders, aggressiveness, and antisocial behavior (American Psychiatric Association, 1994; Roeser, Eccles, & Strobel, 1998). These kinds of behaviors consist of negative emotions directed against others, such as anger, aggression, frustration, and fear (Roeser et al., 1998). Internalizing problem behaviors, on the other hand, refer to emotional problems like depression and anxiety, where negative emotions are directed at oneself rather than others (Roeser et al., 1998).

Social-emotional development originates from the interactions an individual has with other people (Bandura, 1989). These interactions provide a basis for an individual's self-control, motivation, and perseverance during an activity (Bandura, 1989) and for the individual to experience, express, and understand emotions (Denham et al., 2011). Although early childhood years are a crucial time for the development of various emotional and social skills, middle childhood is considered an important developmental period (Collins, 1984). During middle childhood, children learn to cooperate with their peers and adults, learn the values of their societies, and are introduced to new social roles in which they earn social status through their competence and performance (Higgins & Parsons, 1983; Eccles, 1999).

One important stage at which social-emotional development should be examined is the transition to primary school. This period can be stressful and challenging for a child (Kiuru et al., 2012; Ladd, 1990; Niesel & Griebel, 2007). During the first grade, children face a greater risk of encountering failure in academic areas as well as peer relations (Campbell & Stauffenberg, 2007). Children are also expected to follow the teacher's directions, and they start to see others' behaviors and points of view and form self-conceptions of their abilities (Campbell & Stauffenberg, 2007). Entering primary school with more social and emotional competence, such as the abilities to make and sustain new friendships and to regulate emotions, has been shown to predict successful early adjustment to school as well as the development of positive attitudes and greater school achievement (Birch, Ladd, & Blecher-Sass, 1997; Denham, 2006; Izard et al., 2001; Jacobsen & Hofmann, 1997; Ladd, Birch, & Buhs, 1999; Ladd, Kochenderfer, & Coleman, 1996; Pianta, 1997; Shields et al., 2001). Similarly, transition to school when there are social-emotional deficiencies raises the risk of the child's psychopathology and academic failure, not only in the first grade but also later in life (Denham, Zahn-Waxler, Cummings, & Iannotti, 1991; Kochenderfer & Ladd, 1996; Raver & Knitzer, 2002; Robins & Rutter, 1990). Therefore, success in this particular transition may have a positive impact on the child's further social-emotional development by either strengthening social

and emotional competence (Campbell & Stauffenberg, 2007; Denham, 2006) or reducing stress and anxiety levels (Timperley, McNaughton, Howie, & Robinson, 2003).

1.2 The role of temperamental characteristics in social-emotional development

Temperament has been defined as constitutionally based individual differences in reactivity (i.e., the arousability or responsivity of the physiological and behavioral system of the organism) and self-regulation (i.e., behavioral and neural processes, including attentional control, that function to modulate reactivity), influenced over time by heredity and experience (Rothbart & Derryberry, 1981). Rothbart and Derryberry (1981) defined *constitutional* as "the relatively enduring biological makeup of the organism, influenced over time by heredity, maturation, and experience" (p. 40). Temperament is relatively stable over time (Buss & Plomin, 1975; Goldsmith et al., 1987; Rothbart, 1989; Thomas & Chess, 1977) and has been considered as a raw material that forms an emotional basis for the later development of personality (Angleitner & Ostendorf, 1994; Goldsmith, Lemery, Aksan, & Buss, 2000), including, for example, an individual's values, attitudes, and coping strategies that are learned as a result of socialization within the surrounding environment (McAdams & Olson, 2010).

In previous literature, various temperamental characteristics have been introduced. Thomas and Chess (1977) identified nine basic temperamental dimensions: activity level, rhythmicity (regularity), approach/withdrawal, adaptability, sensory threshold, intensity of reaction, quality of mood, distractibility, and attention span/persistence (for a review, see Zentner & Bates, 2008). Although the list of dimensions has been influential, factor analytic research has shown a certain redundancy among the dimensions (for a review, see Martin, Wiesenbaker, & Huttunen, 1994).

More recently, Rothbart suggested three broad factors for temperament in children of 3–7 years of age: *surgency-extraversion*, *negative affectivity*, and *effortful control* (Rothbart, 2007; Rothbart, Ahadi, Hershey, & Fisher, 2001). Surgency/extraversion is characterized by positive emotionality and approach behavior, for instance, positive affect, high intensity pleasure seeking, sociability or low shyness, and impulsivity (Rothbart, 2011; Rothbart, Derryberry, & Hershey, 2000; Rothbart et al., 2001). Children high in surgency/extraversion are highly active and rapid in their responses, take risks, and constantly explore their environment with disregard for rules and regulations on their behavior (these regulations can be a source of frustration) (Rothbart et al., 2000). Negative affectivity, in turn, refers to individual differences in the threshold, intensity, and recovery of negative emotions such as sadness, anger, and frustration (Rothbart et al., 2001). Children with high negative affectivity are sensitive to negative signs in

their environment and become easily frustrated, which can lead to a pattern of anger, irritability, or aggression, which in turn can lead to externalizing behavior problems (Berdan, Keane, & Calkins, 2008; Sanson et al., 2004). Finally, effortful control is a self-regulative aspect of temperament and characterized that involves attentional focusing, inhibitory control, perceptual sensitivity, and low-intensity pleasure (Posner & Rothbart, 2000). High effortful control enables children to modulate their behavior, inhibit impulsiveness, modulate response, and use attentional control and other coping strategies to monitor and adjust their behavior (Berdan et al., 2008). Effortful control has been shown to be negatively related to externalizing behavior and anger among preschoolers and positively related to social competence (Blair, Denham, Kochanoff, & Whipple, 2004; Olson, Sameroff, Kerr, Lopez, & Wellman, 2005).

Martin and Bridger (1999) suggested two broad behavioral patterns for early childhood (ages 3–7 years) temperament: *behavioral inhibition* and *impulsivity/approach*. Children who are rated high on behavioral inhibition have a tendency to become emotionally upset or to physically withdraw in a social situation around unfamiliar persons (Deal, Halverson, Havill, & Martin, 2005). Children who are rated high on impulsivity are highly active due to lack of the ability to modulate physical activity; they also lack the ability to sustain attention toward difficult tasks and often express negative emotions. Behavioral inhibition and impulsivity (Martin & Bridger, 1999) correspond with concepts of extraversion/surgency (inversely) and effortful control (inversely) (Rothbart et al., 2001), respectively (Deal et al., 2005). Rothbart et al. (2001) argued that negative emotionality is an independent temperamental factor and not part of effortful control, whereas Martin and Bridger (1999) included negative emotionality as a part of impulsivity.

Aside from specific dimensions or factors of temperament, individual temperament can also be conceptualized as a constellation of the different dimensions (Rothbart & Derryberry, 1981). This perspective calls for a person-centered approach (Bergman, Magnusson, & El-Khouri, 2003) to temperament, which considers the ways in which temperament traits are organized and integrated within the individual. In line with this perspective, Thomas and Chess (1977) identified three patterns of temperament, that is, *easy*, *difficult*, and *behaviorally inhibited*, each of which consist of different combinations of dispositional temperamental traits, such as mood, inhibition, activity, and negative emotionality. Children with an *easy* temperament are characterized as having good attention span; optimistic humor; adaptability; mild to moderate activity, intensity, and sensitivity; and positive response to new situations. Children with *difficult* temperaments are characterized as being very active; having negative and pessimistic humor; and as being overly sensitive, intensely reactive, and resistant to change. Finally, behaviorally inhibited children are characterized as being less active, less overtly intense or emotional, and inclined to withdraw in new situations.

A number of models have been posited to explain the developmental processes through which temperamental characteristics exerts their effects on child

development (Sanson et al., 2004). The first model suggests that temperament affects child development through *direct linear effects.* According to this view, temperamental characteristics contribute to the development of child behaviors directly (e.g., difficult temperament is related to externalizing problem behaviors) (for a review, see Sanson et al., 2004). The second model states that temperament affects child development through *indirect effects* (e.g., Eisenberg et al., 2005; Lengua, 2008). The third model suggests that it is the interaction between temperament and environment that plays a role in child development, rather than temperamental characteristics as such. This line of argument includes the *goodness-of-fit* hypothesis (Thomas & Chess, 1977), according to which high compatibility between temperamental and contextual characteristics facilitates healthy development, whereas a mismatch compromises development. Finally, the *transactional model* argues that children's temperament, health status, and cognitive capacities, together with parent and family circumstances and the wider sociocultural context, all interconnect to explain and predict developmental pathways. In this approach, temperament is often seen as a risk or protective factor (for a review, see Sanson et al., 2004).

The present research applied the elements of the aforementioned third and fourth models, assuming that understanding the process of development requires an analysis of the interaction among intrinsic child temperamental characteristics and aspects of family environment. In the present research, temperament was approached from the viewpoint of temperamental inhibition and the related behavioral pattern, that is, social withdrawal. The approach of constellations of temperamental characteristics, in terms of easy, difficult, and inhibited temperament types, was also applied.

1.2.1   Behavioral and social inhibition

Behavioral inhibition is a temperamental characteristic that has been shown to play an important role in children's social-emotional development. Behavioral inhibition is a temperamental trait characterized by being highly reactive in stressful situations, for instance, in response to unfamiliar people or objects, and to become easily overstimulated (e.g., Feng et al., 2008; Fox, Henderson, Marshall, Nichols, & Ghera, 2005). In other words, children who are rated high on behavioral inhibition usually respond with caution, restraint, and withdrawal to novel situations and objects, and they are typically fearful, timid, and shy with unfamiliar people (Kagan, 1994; Kagan, Reznick, & Snidman, 1988). A similar concept of behavioral inhibition is shyness. Shyness, that is, social inhibition, has been defined as a temperamental trait characterized by a consistent display of wariness and feelings of unease in the face of social novelty and perceived social evaluation (Rubin et al., 2009). Shy children experience an approach-avoidance conflict, in which the desire for social interaction with peers, that is, high social approach motivation, is instantaneously inhibited by anxiety and social fear, that is, high social avoidance motivation (Asendorpf, 1993; Coplan, Prakash, O'Neil, & Armer, 2004). Although shyness overlaps with the concept

of behavioral inhibition, the difference between these two concepts is that be-
havioral inhibition includes fear and wariness in novel social as well as non-
social contexts (Dyson, Klein, Olino, Dougherty, & Durbin, 2011), whereas shy-
ness includes fear and wariness in social contexts in particular. In previous lit-
erature, these two terms have often been used as synonyms (for a review, see
Rubin & Coplan, 2010). A variety of other terms have also been used to refer to
shyness (Coplan et al., 1994), such as anxious solitude (i.e., social wariness dis-
played specifically in familiar peer contexts; Gazelle & Ladd, 2003), and reti-
cence, that is, anxiety and wariness in the face of evaluation or social novelty
(Rubin et al., 2009) or in social contexts overall (Coplan, DeBow, Schneider, &
Graham, 2009).

Temperamental inhibition (including shyness) has been described as one
of the most stable temperamental and personality characteristics (for a review,
see Rapee & Coplan, 2010) and has been shown to increase children's risks of
social difficulties later in life (Rubin, Coplan, Bowker, & Menzer, 2011). Behav-
iorally inhibited children are more likely to develop anxiety disorders (for re-
views, see Hirshfeld-Becker, Biederman, Rosenbaum, 2004; Hirshfeld-Becker et
al., 2008), show social anxiety and other internalizing symptoms (American
Psychological Association, 2007; Sanson et al., 2004; van Brakel, Muris, Bögels,
& Thomassen, 2006), and develop pathological anxiety (Hirshfeld-Becker et al.,
1992). These children are also more likely to suffer from depression later in life
(e.g., Hirshfeld-Becker et al., 2003; Muris, Meesters, & Spinder, 2003). Research
focusing particularly on social inhibition, that is, shyness, has associated shy-
ness with adjustment problems such as problems with peers (e.g., Coplan et al.,
2004; Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998). Shy children have
been found to be at a higher risk of internalizing problem behaviors, that is,
showing symptoms of depression or anxiety in childhood (Biederman et al.,
2001; Janson & Mathiesen, 2008) and adolescence (Caspi, Moffitt, Newman, &
Silva, 1996; Lonigan, Phillips, & Hooe, 2003; Rubin, Chen, McDougall, Bowker,
& McKinnon, 1995), than non-shy children. Moreover, shy school-aged children
have been shown to be victimized and rejected by peers, leading to depression
and social avoidance in the context of high exclusion (Gazelle & Rudolph, 2004)
as well as feelings of loneliness and negative perceptions of their own social
skills and relationships (for a review, see Rubin et al., 2002).

Some studies have also examined the role of inhibition in developing exter-
nalizing problem behaviors. This research has yielded somewhat inconsistent
results (Kimonis et al., 2006; Pine, Cohen, Cohen, & Brook, 2000; Vitaro,
Brendgen, & Tremblay, 2002; Williams et al., 2009). For example, some studies
have found that behavioral inhibition is linked to higher externalizing problem
behaviors (e.g., delinquency and substance use) in adolescence (Moffitt, Caspi,
Dickson, Silva, & Stanton, 1996; Rubin & Burgess, 2001). These results have
been suggested to be due to the social reward properties that behavioral inhibi-
tion convey. However, other studies showed that behavioral inhibition predicts
less externalizing problem behaviors later in life (Kimonis et al., 2006; Pine et al.,
2000). This suggests that the typical avoidance patterns and higher reactivity to

novelty of behaviorally inhibited children may protect them from aggressive, approach-oriented, or destructive behavior over time (Williams et al., 2009).

1.2.2 Social withdrawal

Social withdrawal refers to children isolating themselves from their peer group (Dyson et al., 2011; Rubin & Asendorpf, 1993). Whereas some socially withdrawn children remove themselves from social interaction, it is also possible that they are excluded and rejected by their peers (Rubin, Coplan, & Bowker, 2009). Thus, social withdrawal may be viewed as an umbrella term that subsumes all forms of behavioral solitude, such as social reticence, shyness, behavioral inhibition, social disinterest, passivity, isolation, and unsociability (for a review, see Rubin et al., 2009). Although these forms of behavioral solitude are connected to a variety of underlying causes (Rubin & Coplan, 2004) such as anxiety, fear, and wariness (for a review, see Rubin et al., 2009), the underlying explanations for these behaviors vary. For example, the term "solitary-active" (cf., actively isolated, rejected) describes children who are withdrawn from social interaction because their peers do not allow these children to interact with them, whereas the "solitary-passive" (cf., unsociability, social disinterest) form of social withdrawal describes children who are disinterested in social interaction and who prefer to play alone (Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Harrist, Zaia, Bates, Dodge, & Pettit, 1997). In turn, reticence (cf., anxiety-type of solitude, passive anxiety) describes children who avoid interaction with peers due to their own fearfulness of social interaction (Harrist et al., 1997).

Social withdrawal shares some common features with shyness. For example, socially withdrawn and shy children have both been reported to be lonelier, to feel less positive about themselves, and to show more signs of internalizing problem behaviors, such as anxiety, depression, and loneliness (e.g., Coplan, Arbeau, & Armer, 2008; Coplan, Closson, & Arbeau, 2007). Moreover, both social withdrawal and shyness are characterized by fear and wariness in social situations and difficulties in relationships and social skills (Dyson et al., 2011). However, whereas shy children often desire social interaction but are inhibited by fear-induced social avoidance (Coplan et al., 2004), socially withdrawn children choose to isolate themselves from their peers through the consistent display of solitary behavior whereas being with them (Rubin & Asendorpf, 1993). Consequently, social withdrawal may arise from social fear as well as from internal factors, with the child deciding, for some reason or another, not to interact with the peer group (Coplan & Rubin, 2007).

Social withdrawal has been shown to be associated with a wide range of social-emotional difficulties from early childhood through adolescence and into adulthood (Rubin et al., 2009). For example, socially withdrawn children have been shown to be less skilled in social competence or in solving interpersonal problems (Bohlin, Hagekull, & Anderson, 2005; Rubin et al., 2002) and to be less pro-social (Hastings et al., 2005) than other children. Social withdrawal has also been related to internalizing problem behaviors in childhood (Biederman et al., 2001; Janson, & Mathiesen, 2008; Rubin et al., 2009) and adolescence (Caspi et al.,

1996; Lonigan et al., 2003; Rubin et al., 1995). However, the limited research on the impact of social withdrawal on externalizing problem behaviors shows inconsistent results (Kimonis et al., 2006; Pine et al., 2000; Vitaro et al., 2002; Williams et al., 2009). For example, it has been reported that children who show reactive aggression are rated as more temperamentally reactive and withdrawn than non-aggressive children (Vitaro et al., 2002). Social withdrawal and other correlates of behavioral inhibition have also been reported to predict lower externalizing problem behaviors later in life (Kimonis et al., 2006; Pine et al., 2000). Moreover, social withdrawal has been found to be associated with some clinical disorders in childhood and adolescence, such as anxiety, autism, personality disorders, phobic disorders, major depression, and schizophrenia (for a review, see Rubin, Burgess, Kennedy, & Stewart, 2003; Rubin et al., 2009).

1.2.3 Difficult, easy, and behaviorally inhibited temperament types

Aside from specific dimensions of temperament, individual temperament can also be conceptualized as a constellation of these different dimensions (Rothbart & Derryberry, 1981). According to this person-oriented approach to temperament, a particular combination of temperamental characteristics or temperamental profiles, rather than specific temperament dimensions, play a role in children's social and emotional development. The most widely used categorization of temperamental features is Thomas and Chess's (Thomas, Chess, Birch, Hertzig, & Korn, 1963) categorization (for a review, see Sanson et al., 2004). Based on the goodness-of-fit between the child and his or her environment, Thomas and Chess (1977) identified three patterns of temperament: 1) *easy*, 2) *difficult*, and 3) *behaviorally inhibited*. They argued that behaviors that lead to a child being classified as "easy" or "difficult" can vary based on parental and cultural values, practices, and attitudes (Zentner & Bates, 2008). The three identified temperamental patterns are constellations of different dispositional temperamental traits, such as mood, inhibition, activity, and negative emotionality (Martin, 1989; Martin & Bridger, 1999; Thomas & Chess, 1977; Windle, 1992). Mood refers to a child's basic mental disposition, varying from being more positive (cheerful, glad, or optimistic) to more negative (somber, grumpy, or pessimistic); inhibition refers to a child's tendency to be cautious, shy, and wary with new people and situations; activity refers to the frequency and quality (vigor and tempo) of a child's motor responses, and negative emotionality refers to a child's tendency to easily feel anger, get upset, or be difficult to soothe (Martin, 1989; Martin & Bridger, 1999; Thomas & Chess, 1977; Windle, 1992, Windle & Lerner, 1986). Children with an easy temperament are characterized by positive mood, low inhibition, low activity, and low negative emotionality. They are described as being approachable, adaptable, positive in mood, having mild to moderate activity, intensity, and sensitivity, and having positive responses to new situations. These children quickly establish routines, adjust easily to new situations, and are generally cheerful and easy to care for. Children with a difficult temperament, in contrast, have been identified as being high in inhibition,

activity, and negative emotionality and low in positive mood. Difficult temperament children are characterized as being slow to adjust to new experiences, negative in mood, very active, overly sensitive, intensely reactive, and resistant to change. Finally, children with a behaviorally inhibited temperament are characterized by high inhibition, low negative emotionality, and low activity. They are described as less active, less overtly emotional or intense, and tending to withdraw in new situations.

Several studies have reported associations between difficult temperament during early childhood and difficulties in self-regulation and emotion regulation in late childhood and adolescence (e.g., Eisenberg et al., 2009; Lahey et al., 2008; Rothbart & Bates, 2006; Sanson et al., 2004; Yagmurlu & Altan, 2010). Difficult temperament has also been associated with externalizing problem behaviors in early and late childhood (for a review, see Sanson et al., 2004). For example, in their longitudinal study, Maziade et al. (1990) found that difficult temperament was strongly related to externalizing problem behaviors for both younger (3–7 years of age) and older (8–12 years of age) children. In regard to behaviorally inhibited temperament profiles in early childhood, these have been shown to predict internalizing problem behaviors in adolescence (Schwartz et al., 1999). Easy temperament profiles, evidenced in adaptive aspects of temperament and the expression of positive emotions, have been shown to be associated with adaptive development, as demonstrated through social competence (for a review, see Lyubomirsky, King, & Diener, 2005; Sanson et al., 2004).

1.3   The role of parenting styles in social-emotional development

Parent-child relationships play an important role in children's early social-emotional development (Hart el at., 2003; Stack, Serbin, Enns, Ruttle, & Barrieau, 2010). Parents affect their child's social and emotional development both directly (e.g., through genetics) and indirectly (e.g., through parent-child relationships) (Bornstein, 2001). It has been theorized that parent-child interaction can serve to organize the child's behavior and psychological functioning (Goodnow & Collins, 1990; Pervin, 1989; see also Coplan, Hastings, Lagacé-Séguin, & Moulton, 2002). One of the most frequently investigated aspects of family is parenting styles. Previous research has emphasized the relationship between children's (mal)adjustment and family functioning (e.g., Davies, Cummings, & Winter, 2004; Johnston & Ohan, 1999), suggesting that parenting styles play a significant role in children's social and emotional development (e.g., Johnson, Kent, & Leather, 2005; Steele, Nesbitt-Daly, Daniel, & Forehand, 2005; Yahav, 2007). Parenting styles have been defined as being representative of general patterns of childrearing that illustrate the typical techniques and responses of parents (Coplan et al., 2002).

The typological approach to parenting styles was first introduced by Baumrind (1971). Based on two aspects of parenting behaviors, responsiveness

and demandingness, Baumrind described three different parenting styles: 1) *authoritative parenting,* characterized by high levels of both parental responsiveness (e.g., warmth, support, and affection) and demandingness (e.g., limit setting, maturity demands); 2) *authoritarian parenting,* characterized by high demandingness (e.g., harsh and punitive control) and low responsiveness, 3) *permissive parenting,* characterized by high responsiveness but low demandingness (Aunola, Stattin, & Nurmi, 2000). Subsequently, *neglectful parenting*, characterized by a lack of both responsiveness and demandingness, was also introduced (Maccoby & Martin, 1983).

Since then, a dimensional approach to determining parenting styles has been introduced. This approach argues that it is important to understand how different parenting styles dimensions, independent of other dimensions, affect child outcomes (Murray, 2008), because the typological approach to parenting styles prevents an understanding of how each dimension contributes to a particular parenting styles classification (Bean, Barber, & Crane, 2006; Galambos, Barker, & Almeida, 2003; Murray, 2008). In the literature, the focus has been mainly on the role of three parenting style dimensions in children's development: 1) *affection*, 2) *behavioral control*, and 3) *psychological control* (Aunola & Nurmi, 2005; Barber, 1996; Hart et al., 2003). Affection refers to parental warmth, acceptance, support, and responsiveness to the child's needs. Following Baumrind's (1971) work, Barber (1996) made a distinction between two different forms of parental control, namely, behavioral control and psychological control (Grolnick & Pomerantz, 2009). According to Barber (1996), behavioral control refers to parents' "attempts to manage or control children's behavior" (p. 3296; see also Grolnick & Pomerantz, 2009). This form of control refers to parental demandingness of the child's behavior that can be confrontive and positive, that is, firm and consistent (e.g., maturity demands, limit setting, monitoring), or coercive and negative, that is, punitive, harsh, and intrusive. Psychological control, in turn, has been defined as parents' "attempts to intrude on the psychological and emotional development of the child (e.g., thinking processes, self-expression, and attachment to the parent)" (p. 3296; see also Grolnick & Pomerantz, 2009). This form of control refers to parental manipulation and control of the child's behaviors and emotions through psychological means (e.g., inducement of guilt, invalidating feeling, and love withdrawal) (Aunola & Nurmi, 2005; Barber, 1996; Baumrind, 2012; Baumrind, Larzelere, & Owens, 2010).

The parenting dimensions have each been shown to be associated with children's subsequent development of social and emotional behaviors. For example, warm, responsive, and supportive parenting predicts children's highly positive social functioning and skills (Hart, DeWolf, Wozniak, & Burts, 1992; Hart et al., 2003; Zhou et al., 2002) and social adjustment (Huntsinger & Jose, 2009; Suchman, Rounsaville, DeCoste, & Luthar, 2007); it has also been linked to the development of children's emotion regulation (Hart et al., 2003). This positive impact has been suggested to be due to the fact that support and responsiveness provide children with feelings of security and trust in the environment, which in turn reduce self-concern and increase emotional functioning, such as

empathy-related responding (Zhou et al., 2002). Furthermore, parental affection plays a significant role in the development of a secure parent-child attachment (Bowlby, 1982), which in turn has been associated with children's positive social functioning (Kestenbaum, Farber, & Sroufe, 1989).

Similarly, positive behavioral control, characterized by the setting of limits, consistent discipline, and demands for maturity, have been shown to be associated with adaptive child development, high levels of pro-social behaviors, peer relationship quality, and low levels of externalizing problem behaviors (Barber, 1996; Chen, Liu, & Li, 2000; Hart et al., 2003; Parke, 2002; Sturgess, Dunn, & Davies, 2001). It has been suggested that these positive effects are due to the fact that disciplinary practices that involve reasoning increase children's awareness of the consequences of their behavior, promote their adaptive behavior, and raise their attention to parental messages (Hoffman, 1970; see also Zhou et al., 2002). Negative behavioral control, that is, harsh punishment and intrusiveness, in turn, has been associated with maladaptive behaviors and weaker pro-social development in children (e.g., Hart et al., 1992; Hastings et al., 2000; Russell & Russell, 1996; Stevenson & Crnic, 2013). With this kind of control, the fear associated with harsh punishment may interfere with the learning of social behaviors and induce compliance with imposed rules rather than internalization of moral standards (Hoffman, 1970; see also Zhou et al., 2002).

A high level of parental psychological control has also been found to be associated with high levels of negative emotions among children (Aunola, Ruusunen, Viljaranta, & Nurmi, 2015) and internalizing problem behaviors, for instance, anxiety, depression, and internalized distress (Barber, 1996). It has been suggested that these negative effects are due to the fact that psychologically controlling parents use emotionally manipulative techniques that are not responsive to the child's emotional and psychological needs (Barber, Maughan, & Olsen, 2005), resulting in emotion dysregulation (e.g., Morris, Silk, Steinberg, Myers, & Robinson, 2007), negative self-concept, low self-esteem (e.g., Silk, Morris, Kanaya, & Steinberg, 2003), maladaptive behaviors, and weaker pro-social development (e.g., Knafo & Plomin, 2006; Zhou et al., 2002).

1.4 The joint effects of child temperament and parenting styles

According to Thomas and Chess (1977), optimal child development can be achieved when there is a match between an individual's temperament and the environment. There is also evidence suggesting that, due to temperamental characteristics, children vary in their sensitivity to the environment (Kiff, Lengua, & Zalewski, 2011; Wachs & Gandour, 1983). Although much is known about the role of temperament, on the one hand, and parenting, on the other, in social and emotional development, less is known about their joint effects. There are, however, various theoretical models that provide a basis for hypothesizing that joint effects do exist.

1.4.1 The goodness-of-fit model

According to the *child-environment model of adaptation* (Nigg, 2006), the characteristics of children determine the kind of environmental support that is most beneficial for them and the kind of environmental risks that they may be particularly vulnerable to. Thomas and Chess (1977) introduced the term "goodness-of-fit" to refer to the compatibility between the growth environment and the child's temperament. According to them, optimal development can be achieved when there is a match between an individual's temperament and the environment; conversely, a poor fit leads to poor child developmental outcomes. A poor fit occurs when parents' demands and expectations do not fit well with their child's temperament. For example, children with difficult temperaments who have rejecting parents have more difficulty with development and adjustment than do difficult temperament children who have supportive parents.

The goodness-of-fit concept suggests that no temperamental characteristic is either good or bad but that changes in the social environment may cause changes in the expression of emotional reactions aroused by temperament (Buss & Plomin, 1975; Chess & Thomas, 1999; Rothbart & Jones, 1998; Thomas & Chess, 1977). Consequently, adaptive outcomes result when the temperamental characteristics of the child fit with the expectations and demands of the environment. For example, it has been shown that parental sensitivity and supportiveness in middle childhood can buffer the negative effects of difficult temperament on social development in adolescence (Jaffari-Bimmel, Juffer, Van IJzendoorn, Bakermans-Kranenburg, & Mooijaart, 2006).

1.4.2 The diathesis-stress model, differential susceptibility model, and vantage sensitivity model

Since the introduction of the goodness-of-fit model, developmental scientists have tried to identify the ways in which internal factors (biological or dispositional characteristics such as temperament) and external factors jointly contribute to social-emotional development in children (Anderson & Beauchamp, 2012; Bates & Pettit 2007). According to the *organismic specificity hypothesis* (Wachs, 1991), individuals may have different reactions to the environment according to the qualities of their own reactivity (Gallagher, 2002), and the environment thus influences different individuals differently (Wachs, 1991). Following this line of reasoning, the *diathesis-stress model* (Zuckerman, 1999) posits that psychopathology occurs as the result of the combination of individual biological or cognitive vulnerabilities (i.e., diathesis) and certain environmental stressors (Cicchetti & Toth, 1998; Lazarus, 1993; Swearer & Hymel, 2015).

Both the diathesis-stress and the goodness-of-fit models propose theoretical explanations for how children's temperaments interact with the environment (McClowry, 2014). A large body of research supports these two models, indicating that adjustment in children can be enhanced when parents and teachers are responsive to children's temperaments (Rothbart & Bates, 2006; McClowry, 2014). However, the diathesis-stress model suggests that, given the

same amount of environmental adversity, temperamentally at-risk children will develop more adjustment problems compared to children without these risks. According to this model, negative life events and individuals' cognitions about these events contribute to the development of externalizing and internalizing psychopathology (Swearer & Hymel, 2015). The diathesis-stress model suggests that, due to some endogenous characteristic of "vulnerability" (diathesis), some individuals are more vulnerable than others to the adverse effects of exposure to negative experiences (stress) (Belsky & Pluess, 2009; Nigg, 2006). When environmental conditions are promising, for instance, having warm and supportive parents, it is likely for children with the vulnerability as well as children without the vulnerability to achieve adaptive developmental outcomes. In unpromising environmental conditions, on the other hand, those children without the vulnerability will be resilient and will achieve positive developmental outcomes, whereas children with the vulnerability are at a greatly elevated risk of manifesting problems (Root, Hastings, & Maxwell, 2012). For example, children with a difficult (or negatively emotional) temperament are most likely to develop or function poorly when exposed to a stressor of interest, for instance, insensitive parenting (Belsky & Pluess, 2009). Typically, the diathesis-stress model has been used to predict social incompetence or behavioral and emotional problems in children (Root et al., 2012). For example, research indicates that children with a difficult temperament display higher problem behaviors and lower adjustment in the first grade when they experience low-quality parenting and less problem behaviors and better adjustment when they experience high-quality parenting (Bradley & Corwyn, 2008; Stright, Gallagher, & Kelley, 2008).

However, more recently, developmental scientists (Belsky, Bakemans-Kranenburg, & van IJzendoorn, 2007; Ellis & Boyce, 2008) have suggested convergent hypotheses to account for numerous observations that the diathesis-stress model cannot explain (Root et al., 2012). The *differential susceptibility model* (Belsky & Pluess, 2009) is used to merge these hypotheses. The differential susceptibility model (Belsky & Pluess, 2009) and the diathesis-stress model both posit that an individual's development and emotional affect are differently susceptible to experiences or to qualities of the environment. Whereas the diathesis-stress model suggests a distinct and mostly negativity-sensitive group, the differential susceptibility model suggests that individuals who are the most vulnerable to negative environmental impacts also gain the most from environmental support and enrichment. In other words, more "plastic" or malleable people are more susceptible than others to environmental influences in a for-better-or-for-worse manner (Belsky et al., 2007), and more susceptible children are more affected by both the negative and the positive developmental consequences of rearing conditions (for a review, see Pluess & Belsky, 2010). For example, children with difficult temperaments have more behavior problems in first grade than all other children if they experience low-quality parenting across their infant, toddler, and preschool years but fewer problems than all other children if they experience high-quality parenting (Bradley & Corwyn, 2008). It has been found that 16–19–month-old boys with difficult tempera-

ments show less externalizing problem behaviors six months later if their mothers are highly sensitive and infrequently use negative control, but they show higher externalizing problem behaviors when their mothers are less sensitive and frequently use negative control (van Aken, Junger, Verhoeven, van Aken, & Dekovic's, 2007). Lengua's (2008) study on a community sample of 8–12-year-old children also found that children highly prone to frustration had higher externalizing problem behaviors over time when their mothers were less sensitive and more rejecting, but that these problems were lower when their mothers were more sensitive and less rejecting.

More recently, the *vantage sensitivity model* has been introduced to characterize the "bright side" of differential susceptibility (Manuck, 2011; Pluess & Belsky, 2013; Sweitzer et al., 2012). According to this model, some individuals are more sensitive than others to environmental advantages in particular (Pluess & Belsky, 2013). For example, these advantages may occur in the form of supportive friendship networks, academic achievements derived from high-quality child care, life satisfaction resulting from positive life events, and security of attachment caused by sensitive parenting. Research has shown that when children with difficult and negatively emotional temperaments experience high-quality non-maternal child care and more warm and supportive maternal care in their first six months of life, they show higher levels of social competence at 4.5 years of age (Pluess & Belsky, 2009) and higher levels of social skills and academic competence when they are 6 years old, compared to children who experience poor-quality parenting (Stright et al., 2008). Roisman et al. (2012) also revealed that children ranked by their mothers as having difficult temperaments at 6 and 12 months had significantly higher academic and social skills at 11 years of age when they were exposed to high-quality parenting in early life. Children with less difficult temperaments, in turn, did not benefit from positive parenting to the same degree (Pluess & Belsky, 2012).

1.5   Aims of the research

The main objective of the present research was to broaden our understanding of the joint effects of parenting styles and the child's temperamental characteristics on children's social-emotional development. For these aims, three studies were conducted, focusing on the period spanning the children's transition to elementary school. This can be considered an important period for examining social and emotional development, as children begin to spend more time with peers, and the demands for social interaction increase (Coplan & Arbeau, 2008).

Study I examined whether children's social withdrawal and mothers' and fathers' parenting styles (affection, behavioral control, and psychological control) would show joint effects on children's social-emotional development from Grades 1 to 3. Although it has been suggested that socially withdrawn and inhibited children benefit from a different kind of parenting than other children (Gallagher, 2002) and that temperamentally vulnerable children are more

influenced than other children by parental socialization, that is parental beliefs and attitudes (Belsky & Pluess, 2009), little is known about the possible joint effects of social withdrawal and parenting styles on children's developmental outcomes. Consequently, Study I examined how parenting styles are associated with a child's social-emotional development in different ways, depending on the child's level of social withdrawal.

Study II focused on the emotional development of children and investigated whether children's temperament types (easy, difficult, or behaviorally inhibited), in combination with mothers' and fathers' parenting styles, would show joint effects on children's emotional development during the first grade of primary school. Although there is some evidence suggesting that children's temperaments moderate the effects of parenting styles on children's behavior, such as adjustment and problem behaviors in early (Bradley & Corwyn, 2008; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002; Kochanska & Kim, 2013; Pluess & Belsky, 2010; Stright et al., 2008) and late childhood (Jaffe, Gullone, & Hughes, 2010; Pluess & Belsky, 2010), less is known about the different impacts of parenting on children's emotional development (Eisenberg et al., 1999). The few prior studies that have examined the combined role of parenting styles and temperament on children's emotional development have focused on children's emotion regulation strategies (Gilliom et al., 2002; Jaffe et al., 2010) rather than on emotion expression. Moreover, the studies have been carried out among preschool-aged children (Gilliom et al., 2002) or older, school-aged children (Jaffe et al., 2010), and less is known about the topic after the critical transition to school.

Study III focused on the social development of children. The study examined whether children's shyness, in combination with mothers' and fathers' parenting styles, would show joint effects on children's social development from ages 4 to 9 years. Although some studies have explored the joint effects of shyness (or related constructs, such as behavioral inhibition or social withdrawal) and parenting styles on children's developmental outcomes (e.g., Feng, Shaw, & Moilanen, 2011; Hane, Cheah, Rubin, & Fox, 2008; Hastings et al., 2005; Kienbaum, Volland, & Ulich, 2001; Lewis-Morrarty et al., 2012; Russell, Hart, Robinson, & Olsen, 2003; Williams et al., 2009), few longitudinal studies have focused on development of children's pro-social behaviors (Hastings et al., 2005). Moreover, the vast majority of previous studies have focused on preschool-aged children; thus, little is known about the joint effects of shyness and parenting on development of children's pro-social behaviors during their critical transition to primary school.

2 METHOD

Table 1 (p. 36) presents the data sets, variables, and statistical methods for each of the three studies. The samples and measures used are described briefly here (see the original studies for a more detailed description).

2.1 Participants and procedure

Data from three separate longitudinal studies was utilized to answer the research questions.

Study I

The sample of Study I comprised 378 children (182 girls, 196 boys) participating in the First Steps study (2016). The First Steps study followed a community sample of children (n = 1880) from kindergarten to elementary school, with data being simultaneously gathered from both parents and teachers from 2006–2011. In the First Steps study, teacher-ratings concerning children's social-emotional development were gathered only from a randomly selected subsample of 378 children (that is, 1 to 4 children from each participating classroom); this subsample was then used in the present study. Children's pro-social skills and their levels of internalizing and externalizing problem behaviors were rated by their school teacher once every year for three years: in Grade 1 (April, 2008), in Grade 2 (April, 2009), and in Grade 3 (April, 2010). Children's social withdrawal was rated at the end of kindergarten by their kindergarten teachers. Parents or legal guardians were asked to complete parental questionnaires at home concerning their parenting styles, independently, and without conferring. Mothers and fathers filled in these questionnaires at the same three points in time that the school teachers filled in their questionnaires. Information on both the children's levels of social withdrawal and their social-emotional development was available for 314 of the 378 children in the target sample (154 girls, 160 boys). Infor-

mation on parenting styles was available for 279 of the mothers and 182 of the fathers of the children. Consequently, these sample numbers were reflected in the final analysis.

Study II

The participants of Study II came from the Parent, Teachers and Children's Learning study (LIGHT study, 2016). The initial sample of the LIGHT study consisted of 166 first-grade children (84 girls, 82 boys). The study was conducted over a period of three consecutive years, during which a sample of three age cohorts of first graders was collected. The schools participating in the study were situated in three medium-sized towns in Finland. The participants were born in the years 1999, 2000, and 2001, and they were 6 to 7 years of age at the time of the first measurement. The sampling was begun by contacting 334 first-grade teachers and asking them to participate in the study. One hundred and sixty-six teachers agreed and signed a written consent form. Next, one student was randomly selected from each class, and the parents of the student were asked to give their consent for their child's participation. Mothers and fathers were asked to respond to a mailed questionnaire concerning their parenting styles and their children's temperament. This was conducted in the fall (October or November) of the children's first grade (Time 1). At the same time point (Time 1), both parents were asked to fill out a structured diary questionnaire concerning their child's negative and positive emotions over seven successive days (diary). The diaries were filled in separately by the mothers and fathers on seven consecutive days, always just before going to sleep. The parents were again asked to fill out the same diaries regarding their children's emotions during the spring of the children's first grade (April; Time 2). From the total of 166 children and their parents participating in the LIGHT study, 14 families were omitted from the analyses because the children were in special education classes. Thus, the final sample of Study II consisted of 152 first-grade children (79 girls, 73 boys) and their mothers (n = 152) and fathers (n = 118).

Study III

The participants (200 children: 94 girls, 106 boys) of Study III came from the Jyväskylä Longitudinal Study of Dyslexia (JLD) (e.g., Lyytinen et al., 2008). All the children in this study were originally selected from among 9368 newborns born in the province of Central Finland between April 1993 and July 1996. Children and their mothers and fathers were followed up from the birth of the children to the end of their secondary school (Grade 9) and were originally selected for one of two groups: with or without familial risk for dyslexia. For a child to be included in the family risk group (n = 108), either of the parents had to show deficient performance in oral text reading or spelling and in phonological or orthographic processing. In addition, a reported onset of literacy problems during early school years and a first-degree relative with corresponding difficulties were required for inclusion in the family risk group. In the

group without family risk, that is, the control group, both parents (n = 92) had no reported family history of dyslexia and had a z-score above -1.0 in all reading and spelling tasks described above. Parents' education in the control group was matched with normative population (for full details of recruitment, see Leinonen et al., 2001). All children spoke Finnish as their native language and had no mental, physical, or sensory impairments. The children's shyness at age 3 (Time 1) was assessed through parent rating; their pro-social behaviors at age 4 (Time 2), 5 (Time 3), 6 (Time 4), 8 (Time 5), and 9 (Time 6) were also assessed. Mothers' and fathers' parenting styles were measured at Time 2 through questionnaires. From among the parents of these 200 children, 185 mothers and 175 fathers participated in the study by answering all these questionnaires. Consequently, these sample numbers were reflected in the final analysis.

2.2 Measures

Different sets of measures were used in the studies. Mothers' and fathers' parenting styles were one of the main focuses in all the studies and were consequently measured in each one. Children's social-emotional functioning was also measured in all three studies, that is, emotional functioning (Study II), social functioning (Study III), or both (Study I). Children's temperamental characteristics were approached from different angles in the three studies: The focus of interest was on children's level of social withdrawal in Study I, temperament types in Study II, and level of temperamental shyness in Study III.

2.2.1 Children's social-emotional functioning

Pro-social behaviors

In Study I, pro-social behaviors were measured using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). During Grades 1–3, teachers were asked to rate each child on a 3-point rating scale (1 = does not apply, 2 = applies partly, 3 = certainly applies). One of the three SDQ subscales was used to measure pro-social skills (five items; e.g., "Is [the child] considerate of other people's feelings?"). Mean scores for this subscale were calculated at each of the three time points. Cronbach's alpha at each time point remained static at .85 for the scale.

Three pro-social behaviors were measured using items from a Finnish version of the Parent Rating Scale (PRS) of the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992). Mother (on average, in 79.3% of cases), father (14.1%), or both parents together (6.6%) filled out the questionnaire when the children were 4, 5, 6, 8, and 9 years old. The BASC incorporates a multidimensional perspective of the child's behavior, including both adaptive and maladaptive aspects. Items are rated on a 4-point scale ranging from "Never" to "Almost always." The parental rating scale for preschoolers (PRS-P; 126

items) was used from ages 4 to 6 years, and the parental rating scale for children (PRS-C; 138 items) was used at ages 8 and 9 years. The score for pro-social behaviors was calculated at all ages as an arithmetic mean from the 16 identical items belonging to the Adaptability or Social skills scales in the PRS-P and the PRS-C of the BASC. Selected items included such items as "Shares toys/possessions with other children" (Adaptability) and "Congratulates others when good things happen to them" (Social skills). Cronbach's alpha reliabilities for the pro-social behaviors scale at the ages of 4, 5, 6, 8, and 9 years were .80, .82, .81, .81, and .86, respectively.

Internalizing and externalizing problem behaviors

In Study I, internalizing and externalizing problem behaviors were assessed across Grades 1, 2, and 3 using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) rated by the teachers. Two of the three SDQ subscales were used to measure externalizing problem behaviors (Conduct problems subscale, five items; e.g., "Often has temper tantrums") and internalizing problem behaviors (Emotional Symptoms subscale, five items; e.g., "Is often unhappy, down-hearted, or fearful"). Mean scores for these subscales were calculated at each of the three time points. The Cronbach's alpha at each time point ranged from .77 to .81 for externalizing problem behaviors and from .73 to .75 for internalizing problem behaviors.

Daily Emotion

Children's emotions in Study II were assessed using the Daily Emotion Scale (DES; Aunola & Nurmi, 2007), which is based on the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). Each day, across one week (seven days), the parents completed a structured questionnaire measuring their child's daily emotions (11 items; e.g., "My child was angry today"; "My child was sad today"; "My child felt distressed today"). Parents rated each item on a 5-point Likert scale (1 = not at all; 5 = very much). In order to create indices regarding children's daily emotions, principal axis factor analyses with oblimin rotation were first carried out for mothers' and fathers' ratings separately. Two factors with eigenvalues over 1 were found in regard to both mothers and fathers: the eight negative emotion items loaded on one factor, and the three positive emotion items loaded on the other. The mean scores for children's negative daily emotions and positive daily emotions were then calculated across the seven days, based on both mothers' and fathers' ratings. The Cronbach's alpha reliabilities for children's negative emotions were .86 at Time 1 and .87 at Time 2, and for children's positive emotions, they were .83 at Time 1 and .87 at Time 2.

2.2.2 Temperament

In Study I, the focus was on social withdrawal. This was evaluated by children's kindergarten teachers, using three items. Two of the items ("The child is with-

drawn from other children"; "The child avoids working in a group with other children") were drawn from the Children's Short Social Withdrawal Scale (Kiuru et al., 2012) and were rated on a 5-point scale (1 = never; to 5 = very often). The third item ("Enthusiastically participates in group activities") was drawn from Multisource Assessment of Children's Social Competence (MASCS; Junttila, Voeten, Kaukiainen, & Vauras, 2006) and was rated on a 4-point scale (1 = never; 4 = very frequently). The score for social withdrawal was constructed by first reversing the positively worded item (third item) and subsequently converting all three items to the same scale (0 = never; 4 = very often/very frequently). The last step was to then calculate the mean across all four items. The Cronbach's alpha for the total score was .70.

In Study II, mothers and fathers evaluated their children's temperament according to a temperament scale (Mullola et al., 2011) created on the basis of the Temperament Assessment Battery for Children—Revised (TABC-R; Martin & Bridger, 1999) and the Revised Dimensions of Temperament Survey—Revised (DOTS-R; Windle & Lerner, 1986). The scale consisted of a total of 41 items, each rated on a 5-point Likert scale (1 = not at all true; 5 = very true). In the present study, subscales were used for the three temperamental characteristics for which mothers' and fathers' evaluations were consistent (i.e., which significantly correlated statistically): 1) negative emotionality (7 items; e.g., "When taken away from an enjoyable activity, my child tends to protest strongly"; "When my child becomes angry, it is difficult to sidetrack him/her"), 2) activity (4 items; e.g., "When sitting, my child swings his/her legs, fidgets, or has his/her hands in constant motion"; "My child can sit quietly through a family meal" (revised)), and 3) inhibition (8 items; e.g., "My child is shy with unfamiliar adults"; "In a new situation or with new people, my child is still uncomfortable even after a few days"). Mean scores for these three temperament subscales were created by calculating the mean of mothers' and fathers' evaluations. The Cronbach's alpha reliabilities for the subscales were, respectively, .84, .75, and .92 for mothers and .79, .73, and .91 for fathers.

In Study III, the focus was on shyness. Children's temperament at the age of 3 years was rated by their parents using a Finnish version of the Children's Behavior Questionnaire (CBQ; Rothbart et al., 2001). The CBQ consists of 195 items to which the parents are asked to respond on a 7-point scale (1 = extremely untrue of your child; 7 = extremely true of your child). The items cover a total of 15 temperamental scales, of which the Shyness scale score was used in this study. Shyness subscale was chosen to the study because the focus of the research was on behavioral inhibition and conceptually related constructs. The Shyness scale consists of 13 items measuring the slow and inhibited approach in novel or uncertain situations (e.g., "Gets embarrassed when strangers pay a lot of attention to her/him"; "Acts shy around new people"). The Cronbach's alpha reliability for the Shyness scale score was .92.

2.2.3 Parenting styles

In all three studies, mothers' and fathers' parenting styles were measured using a revised Finnish version (Aunola & Nurmi, 2004) of Block's Child-Rearing Practices Report (CRPR; Roberts, Block, & Block, 1984), which included 19 items measured on a 5-point scale (1 = does not fit me at all; 5 = fits me very well). The affection dimension (10 items, e.g., "I often show my child that I love him/her") measured parental warmth and responsiveness. The behavioral control dimension (five items, e.g., "My child should learn that we have rules in our family") measured demandingness, limit setting, and maturity demands. The psychological control dimension (four items, e.g., "I believe my child should be aware of how much I have done for him/her") measured parental attitudes appealing to guilt and expressing disappointment.

In Study I, mean scores were calculated for different parenting style dimensions at each of the three time points (during Grades 1–3). The Cronbach's alpha reliability for each of the three parenting style dimensions at different measurement points ranged from .84 to .85 for mothers' affection and from .82 to .84 for fathers' affection; from .62 to .71 for mothers' behavioral control and from .72 to .76 for fathers' behavioral control; from .69 to .76 for mothers' psychological control and from .72 to .83 for fathers' psychological control. In Study II, affection, behavioral control, and psychological control were measured once (in the fall of the children's first grade). The Cronbach's alpha reliabilities regarding these dimensions were, respectively, 0.77, 0.66, and 0.81 for mothers and 0.80, 0.61, and 0.79 for fathers. In Study III, affection and behavioral control were measured once (when the children were 4 years old), and the Cronbach's alpha reliabilities regarding these dimensions were, respectively, .76 and .56 for mothers and .82 and .60 for fathers.

TABLE 1   Summary of the variables and methods used in Studies I–III

Studies	Data set and measurement points	Dependent variables	Independent variables	Statistical methods
Study I	The First Steps study (N = 314) - Kindergarten - Grade 1 - Grade 2 - Grade 3	Social-emotional development[a] - Pro-social behaviors - Externalizing problem behaviors - Internalizing problem behaviors	Social withdrawal [a] Parental affection Parental behavioral control Parental psychological control	Panel data regression technique
Study II	The LIGHT[1] study (N = 152) - Grade 1, Fall - Grade 1, Spring	Emotional development[b] - Positive daily emotions - Negative daily emotions	Temperament type[b] Parental affection Parental behavioral control Parental psychological control	Two-step clustering analysis Covariance analyses Hierarchical regression analyses
Study III	The JLD[2] study (N = 200) - Age 3 - Ages 4, 5, 6, 8, & 9	Social development[b] - Pro-social behaviors	Shyness[b] Parental affection Parental behavioral control	Latent Growth Curve modeling

Note 1.[1] Parents, Teachers and Children's Learning study; [2]Jyväskylä Longitudinal Study of Dyslexia.
Note 2. [a] Teacher ratings, [b] Parents ratings.

3 OVERVIEW OF THE ORIGINAL STUDIES

3.1 Study I

Children's social withdrawal moderates the associations between parenting styles and the children's social-emotional development

The aim of Study I was to examine whether children's social withdrawal, in combination with mothers' and fathers' parenting styles, would show joint effects on children's social-emotional development in terms of externalizing and internalizing problem and pro-social behaviors during Grades 1–3. Three hypotheses were posed: 1) Parental affection and behavioral control are positively associated with children's pro-social behaviors and negatively associated with their externalizing and internalizing problem behaviors; 2) parental psychological control is negatively associated with pro-social behaviors and positively associated with different forms of problem behaviors; 3) these associations would be stronger among children showing socially withdrawn behavior than among other children. In addition to this, three alternative sub-hypotheses were posited: 1) Socially withdrawn children are more vulnerable than others to the negative effects of parenting, as suggested by the diathesis-stress model; 2) socially withdrawn children are more sensitive than others to the positive effects of parenting, as suggested by the vantage sensitivity model; 3) socially withdrawn children are more sensitive to both the negative and positive effects of parenting than others, as suggested by the differential susceptibility model (Belsky & Pluess, 2009; Pluess & Belsky, 2013).

Teachers rated 314 children (154 girls, 160 boys) on their pro-social skills and internalizing and externalizing behaviors at three points in time between Grades 1 and 3. Mothers (n = 279) and fathers (n = 182) filled in questionnaires measuring their affection and behavioral and psychological control at the same points in time. The teacher reports on children's level of social withdrawal were obtained at the end of kindergarten.

The result of the panel analysis showed, first, that those children who showed signs of social withdrawal were particularly vulnerable to the negative effects of low maternal affection in terms of externalizing problem behaviors. Second, among socially withdrawn children, mothers' and fathers' psychological control predicted high levels of internalizing problem behaviors but, at the same time, mothers' psychological control also predicted a high level of pro-social behaviors and low levels of externalizing problem behaviors.

Overall, the results of Study I supported the diathesis-stress model (Zuckerman, 1999) more than they did the differential susceptibility model (Belsky & Pluess, 2009). For example, socially withdrawn children were found to be particularly vulnerable to the negative effects of low maternal affection. Although maternal psychological control had positive effects on the pro-social skills of socially withdrawn children and reduced the levels of externalizing problem behaviors, it was associated with an increase in children's internalizing problem behaviors. These results suggest that socially withdrawn children may be at risk of pleasing their mothers at the cost of their own well-being.

3.2 Study II

Parenting styles and children's emotional development during the first grade: the moderating role of child temperament

The aim of Study II was to examine whether children's temperament in combination with mothers' and fathers' parenting styles would show joint effects on children's emotional development in terms of negative and positive emotions during the first grade. Based on the diathesis-stress and differential susceptibility models (Belsky & Pluess, 2009) and the goodness-of-fit model (Thomas & Chess, 1977), five hypotheses were posed: 1) difficult temperament (i.e., high negative emotionality, inhibition, and activity) predicts increased negative emotion in children during the first grade; 2) parental psychological control predicts increased negative emotion in children during the first grade; 3) parental affection and behavioral control predict increased positive emotions in children during the first grade; 4) children with a difficult temperament would suffer the effects of lack of parental behavioral control more than others do, and this is manifested as an increase in negative emotions; 5) inhibited children (i.e., those with high inhibition but low negative emotionality and low activity) benefit more from parental affection than those with an easy temperament (i.e., positive mood but low inhibition, activity, and negative emotionality).

Mothers and fathers of 152 children (79 girls, 73 boys) responded to a questionnaire concerning their parenting styles and their child's temperament, at the beginning of their child's first grade (Time 1). They also filled in a structured diary questionnaire concerning their child's negative and positive emo-

tions over seven successive days (diary) at the beginning (Time 1) and at the end (Time 2) of their child's first grade.

The results of hierarchical regression analyses showed, first, that mothers' psychological control at Time 1 was associated with a subsequently high level of negative emotions among children, independent of the child's temperament. Second, mothers' high affection was associated with subsequently low levels of negative emotions, particularly among children with inhibited temperaments. Third, mothers' behavioral control was associated with low levels of negative emotions among children with difficult temperaments. Fourth, fathers' psychological control was associated with subsequently high levels of negative emotions among children with difficult temperaments. Finally, no associations were found between parenting styles and children's positive emotions.

The results of Study II suggest that mothers' and fathers' parenting styles play a role in their children's negative emotions and related development, particularly among difficult or temperamentally inhibited children. Children with inhibited temperament, in particular, were found to benefit from high levels of maternal affection, whereas children with a difficult temperament seemed to benefit from maternal behavioral control but suffered more under paternal psychological control.

3.3 Study III

Children's shyness moderates the associations between parenting behaviors and the development of children's pro-social behaviors

The aim of Study III was to examine whether children's shyness moderates the longitudinal associations between mothers' and fathers' parenting styles and children's social development in terms of pro-social behaviors during the transitional period from preschool to primary school. Three hypotheses were posed: 1) parental affection is positively associated with children's levels and development of pro-social behaviors; 2) parental behavioral control is positively associated with children's levels and development of pro-social behaviors; 3) these associations would be stronger among children exhibiting shy behaviors than among other children.

A total of 200 children were rated by their parents on their shyness at age 3 and on their pro-social behaviors at ages 4, 5, 6, 8, and 9. The children's mothers (n = 185) and fathers (n = 175) completed questionnaires measuring their levels of affection and behavioral control when the children were four years old.

The results of the Latent Growth Curve modeling showed, first, that although maternal and parental affection were related to high levels of pro-social behaviors for both shy and non-shy children, shy children, in particular, benefitted from parental affection in terms of their subsequent development of pro-social behaviors. Second, the results revealed that paternal behavioral control

was positively associated with pro-social behavioral levels among non-shy children only.

The results of Study III suggest that children showing signs of shyness are particularly vulnerable to the effects of maternal and paternal affection in terms of their development of pro-social behaviors. Therefore, parental affection, responsiveness, and support may be critical for the development of pro-social behaviors, especially among shy children.

TABLE 2   Summary of the main results of Studies I–III

		Mothers			Fathers		
	Moderator	Affection	Behavioral control	Psychological control	Affection	Behavioral control	Psychological Control
Study I							
Pro-social	SW	+	-	+	+		
	Non-SW	+	-		+		
Internalizing	SW			+		-	+
	Non-SW					+	-
Externalizing	SW	-	+	-			
	Non-SW		+	+			
Study II							
Negative emotions	Easy temperament			+			+
	Difficult temperament		-	+			
	Inhibited temperament	-		+			
Study III							
Pro-social	Shy (intercept)	+			+		
	(slope)	+			+		
	Non-Shy (intercept)	+			+	+	

Note. + = positive association; - = negative association; SW = social withdrawal.

4   DISCUSSION

The aim of this research was to examine the joint effects of the child's temperamental characteristics and parental behaviors on children's social and emotional development during early school years. Past research has shown that inhibited, shy children, in particular, may be at risk for maladaptive developmental outcomes in terms of internalizing problem behaviors, social difficulties, and adjustment problems, whereas an easy temperament and a tendency to approach rather than withdraw protects against maladaptive social and emotional development. It has been suggested, however, that it is not temperament as such that impacts development, but rather the joint impacts of temperament and environment (Nigg, 2006; Belsky & Pluess, 2009). The various characteristics of children determine the kind of environmental support that is most beneficial for them and the kind of environmental risks to which they might be particularly vulnerable. It has also been suggested that, depending on their particular characteristics, some children are generally more susceptible than others to parental socialization (Belsky & Pluess, 2009). In the present research, this topic was approached from different angles. First, the joint impacts of social withdrawal and parenting styles on the children's social-emotional development were examined. Second, the joint impacts of temperament types and parenting styles on emotion expression were investigated. Third, the joint impacts of shyness and parenting on children's social development were examined. The present research adds to the existing literature by investigating whether different children, depending on their particular temperamental characteristics, are more susceptible than others to different kinds of parenting, in terms of their social-emotional development in their early school years (Barber, 1992; Belsky & Pluess, 2009). This kind of knowledge can make unique contributions to the development of effective preventive programs for children who are at risk for maladaptive social-emotional development.

4.1 Parental affection, the child's temperamental characteristics and children's social-emotional development

According to the goodness-of-fit model (Thomas & Chess, 1977), healthy functioning occurs when there is compatibility between the child's characteristics and the environmental expectations and demands (Chess & Thomas, 1986; 1996). The vantage sensitivity model (Belsky & Pluess, 2013), diathesis stress model (Zuckerman, 1999), and differential susceptibility model (Belsky & Pluess, 2009) each suggests that some children are more sensitive than others to environmental impacts. According to the vantage sensitivity model, this is evident as a susceptibility to positive effects of environment (e.g., high parental affection), whereas, according to the diathesis-stress model (Zuckerman, 1999), this is evident as a susceptibility to the negative effects of environment (e.g., low parental affection). In addition, according to the differential susceptibility model (Belsky & Pluess, 2009), some children are more vulnerable to both the negative and positive environmental impacts and experiences than others are. Overall, following these lines of reasoning, high parental affection and supportiveness can be assumed to be particularly important for the development of emotional and social skills among temperamentally vulnerable children.

The results of the present research provided support for these assumptions by showing that parental affection had positive impacts among inhibited children in particular, evidenced by (1) decreased levels of negative emotions during first grade (Study II) and (2) increased pro-social behaviors during the transition to school (Study III). Conversely, the results suggest that a low level of parental affection is particularly detrimental for inhibited children, it being associated with increased levels of negative emotions and decreased pro-social behaviors during the transition to school. These results are in line with previous findings showing that shyness is negatively related to pro-social behaviors, but only among children with parents who had low levels of sympathy and caring behaviors (Kienbaum et al., 2001). As inhibited children are often more passive in regulation behaviors (e.g., Blair et al., 2004; Feng et al., 2008) and are rejected by their peers (Booth et al., 1994), due to their passivity in regulation behaviors, they may be more dependent on external sources of support, such as parental affection, in their development of effective regulation and pro-social behaviors (Rubin & Coplan, 2010). Consequently, parental warmth and support can function as an important source of emotional support for them. Furthermore, because a positive and warm parent-child relationship is characterized by better parent-child communication and associated with greater usage of problem-focused coping styles and social support (McIntyre & Dusek, 1995; Ranson & Urichuk, 2008), higher maternal affection can be seen as providing greater emotional support for children with inhibited temperaments, helping them to overcome their fears in new situations and leading to a reduction in their level of negative emotions.

The results of the present research also showed that, among socially withdrawn children, low maternal affection was associated with high externalizing behavior during the first school years, whereas, among non-withdrawn children, this negative effect of low maternal affection was not evident (Study I). The results further showed that there were no differences between the socially withdrawn children and the non-withdrawn children when considering high maternal affection. This result is in accordance with the diathesis-stress model (Zuckerman, 1999) and suggests that children with high levels of social withdrawal behavior are particularly more vulnerable to the negative impacts of low maternal affection than are other children. One mechanism that possibly explains this result is that, because children who are anxious and withdrawn are often rejected by their peers (Booth, Rose-Krasnor, McKinnon, & Rubin, 1994), maternal support and warmth forms an important alternative source of emotional support for them. Another explanation is that, because a warm and positive parent-child relationship is characterized by better parent-child communication and more usage of problem-focused coping styles and social support (Ranson & Urichuk, 2008), this kind of mothering provides the kind of emotional support that socially withdrawn children need. In addition, such parenting helps children to learn more adaptive ways of communicating their emotions than simply externalizing their problems. Generally, both temperamentally inhibited and socially withdrawn children seem to benefit from parental affection (or to suffer under lack of parental affection) more than other children during the early school years.

Overall, the results of the present research revealed that there was no difference between the roles of mothers' affection and fathers' affection in relation to the pro-social behaviors of shy children (Study III). However, only mothers' affection played a role in the negative emotions of inhibited children's (Study II) and the externalizing problem behaviors of socially withdrawn children (Study I), suggesting that maternal affection may be even more important for inhibited and withdrawn children than paternal affection.

4.2   Parental behavioral control, the child's temperamental characteristics, and children's social-emotional development

Parental behavioral control, defined as clear rules and firm and consistent discipline, for instance, maturity demands, limit setting, and monitoring, have been previously found to be associated with adaptive social and emotional development (Barber, 1996; Chen et al., 2000; Hart et al., 2003; Parke, 2002; Sturgess et al., 2001). The results of the present research showed that the positive role of mothers' and fathers' behavioral control in their children's social-emotional development was evident particularly among children with difficult temperaments (Study II) and socially withdrawn children (Study I).

The results of Study II showed that, although the negative emotions of children with a difficult temperament increased during the first grade, compared to children with easy temperaments, high levels of maternal behavioral control protected against this increase. The higher the level of maternal behavioral control, the lower was the level of subsequent negative emotions among children with a difficult temperament. Among easy and inhibited children, maternal behavioral control had no impact. This pattern of results is in line with previous evidence that high parental control, that is, regulation of the child's behavior through firm and consistent discipline that is not harsh, predicts greater adjustment and less negative behaviors among children with a difficult temperament (Bates, Pettit, Dodge, & Ridge, 1998; Gallagher, 2002; Park, Belsky, Putnam, & Crnic, 1997; Putnam, Sanson, Rothbart, 2002). This is also in line with the differential susceptibility model (Belsky & Pluess, 2009), as it suggests that children with difficult temperaments are more sensitive to the positive impacts of high maternal behavioral control and to the negative impacts of low maternal behavioral control than are other children. According to the goodness-of-fit model (Thomas & Chess, 1977), a child's developmental outcomes can differ depending on the parenting strategies adopted and the child's characteristics. Children with a difficult temperament may benefit from clear limits on their behavior, more so than other children, in regard to adjusting to their school environment (e.g., Bates et al., 1998; Park et al., 1997; Gallagher, 2002).

The results of Study I revealed that a lack of paternal behavioral control was marginally associated with greater internalizing problem behaviors among children who exhibit a relatively high level of social withdrawal. Among less socially withdrawn children, the result was marginally significant in the opposite direction, that is, lack of paternal behavioral control was associated with a low level of children's internalizing problem behaviors. Overall, these results are in line with the findings of Williams et al. (2009), who found that permissive mothering was associated with greater internalizing behaviors among inhibited children but not among non-inhibited children. They went on to suggest that fearful and inhibited children may benefit from more parental control because such control can provide the structure that these children require in order to interact in social situations.

The results of Study III were, however, somewhat different from those of Study I, as they showed that paternal behavioral control was related to higher levels of pro-social behaviors among non-shy children but not among shy children. In other words, the higher the levels of fathers' behavioral control, the higher were the levels of pro-social behaviors among their non-shy children. Although the results are somewhat consistent with the assumption that parental behavioral control is positively associated with children's levels of pro-social behaviors, it is inconsistent with the assumption that parental behavioral control is positively associated with shy children's pro-social behaviors in particular. Whereas some earlier literature has found that parental controlling behavior has a negative impact on children's social acceptance (e.g., Isley, O'Neil, Clatfelter, & Parke, 1999; Isley, O'Neil, & Parke, 1996), other research suggests that

parental behavioral control, within the context of a sensitive and warm relationship, is positively related with more adaptive social functioning and social adjustment (Hart et al., 1992; Huntsinger & Jose, 2009; Suchman et al., 2007; Zhou et al., 2002). Our results concerning the positive association of behavioral control for non-shy rather than shy children may stem from the fact that, among shy children, behavioral control is interpreted as over-control, implying negative effects that may undermine any positive ones. Rubin et al. (1997) found that mothers of shy children have a tendency to use an over-solicitous style of parenting (i.e., high affection combined with over-controlling or overprotective behaviors). Thus, it may be that shy children do not benefit from behavioral control as much as non-shy children do. One explanation for this finding is that shy children benefit more from gentle styles of parental discipline (i.e., encouragement rather than threats), whereas this kind of parenting is less effective for non-shy children (Kochanska, 1997).

The fact that the results of Study I, which focuses on socially withdrawn children, were different from those of Study III, which focuses on shy children, may be due to the fact that social withdrawal is a different characteristic from shyness. Whereas shy children often desire social interaction but are inhibited by fear-induced social avoidance (Coplan et al., 2004), socially withdrawn children choose to isolate themselves from their peers through the consistent display of solitary behavior whereas being with them (Rubin & Asendorpf, 1993). The difference in the results may also be due to the ages of the children. In Study I, school-aged children were researched, whereas Study III focuses on the shyness of the children, levels of paternal behavioral control, and children's pro-social behaviors among 3 to 4-year-old children. It is possible then that, during an early age, paternal behavioral control has a different role among non-inhibited children than during later school years. When interpreting the results of Study III, it should be noted that the utilized measure for parental behavioral control was not as reliable as it could have been. Thus, it is possible that the use of different methods to assess behavioral control could produce different results.

Overall, the results of the present research indicate that maternal and paternal behavioral control can play different roles among children with different temperamental characteristics. Independent of the level of social withdrawal, maternal behavioral control was negatively associated with children's pro-social behaviors and positively associated with their externalizing problem behaviors (Study I). Meanwhile, paternal behavioral control had different impacts on internalizing problem behaviors, depending on the level of social withdrawal in the children (Study I). Further, only maternal behavioral control played a role in the development of children's negative emotions among difficult temperament children (Study II). Paternal behavioral control, however, was positively associated with pro-social behaviors, but only among non-shy children (Study III). When interpreting the results concerning parental behavioral control, it should be noted that the associations found may partly be due to the fact that children and their behaviors lead parents to increase their behavioral control, rather than the other way around. It is very possible, for example, that the positive associa-

tion between maternal behavioral control and children's externalizing problem behaviors is due to the fact that mothers react to children's externalizing behavior by increasing their behavioral control. To get a clearer picture of the role of parental behavioral control in children's social-emotional development, further longitudinal research should be carried out, focusing on the cross-lagged relations between parental behavioral control and child development.

4.3 Parental psychological control, the child's temperamental characteristics, and children's social-emotional development

Parental psychological control has been defined as controlling a child's behavior and emotions through psychological means, for instance, guilt inducement (Aunola & Nurmi, 2005; Barber, 1996, Baumrind, 2012; Baumrind et al., 2010). Parental psychological control has previously been related to various negative child outcomes (Aunola & Nurmi, 2005, Barber, 1996; Hart et al., 2003). The present research examined whether these negative impacts are dependent on the child's temperamental characteristics. The results of Study II first showed that, although the psychological control deployed by mothers predicted increased levels of negative emotions among all children during the first grade, independent of child temperament, fathers' psychological control was detrimental particularly for children with a difficult temperament. The results of Study II supplement the findings of previous literature by suggesting that the negative effects of fathers' psychological control may be particularly true among children with a difficult temperament (Blackson, Tarter & Mezzich, 1996; Colder, Lochman, & Wells, 1997; Gilliom et al., 2002; Jaffe et al., 2010). These findings are in line with the diathesis-stress model, suggesting that children with a difficult temperament are even more susceptible to parental negative impacts than those with easy temperaments. Unlike behavioral control (i.e., regulation of the child's behavior through firm and consistent discipline), psychological control is an effort to maintain power over a child and is indicative of a negative parent-child relationship (Barber & Harmon, 2002). It has been suggested that high parental psychological control can result in negative emotions among children by promoting negative self-schemas (McLeod, Weisz, & Wood, 2007), transfusing children's sense of dependency (Chorpita, Brown, & Barlow, 1998), and decreasing their sense of control (Nanda, Kotchick, & Grover, 2012), which in turn can lead to heightened distress in the child (Aunola et al., 2013). The reason why psychological control deployed by fathers led to an increase in negative emotions particularly among children with a difficult temperament may be due to the fact that these children are biologically more prone to negative emotions and intense emotional reactions than other children (Davies, 2011).

Second, the results of Study I showed that mothers' and fathers' psychological control played an important role, particularly in the social-emotional

development of socially withdrawn children. In line with the diathesis-stress model (Zuckerman, 1999), the results of Study I showed that children with a high level of social withdrawal were more vulnerable to the negative effects of both mother's and father's psychological control than were other children in regard to internalizing problem behaviors. However, the results of Study I also indicated that, among more socially withdrawn children, maternal psychological control predicted higher levels of pro-social skills and lower levels of externalizing behavior problems. Maternal psychological control was found to have no effect among less socially withdrawn children. These unexpected results suggest that maternal psychological control may also have positive consequences for more socially withdrawn children. According to Russell et al. (2003), authoritarian mothering, characterized by negative maternal control, predicted a decrease in externalizing problem behaviors among behaviorally inhibited children over time (see also Gallagher, 2002). Gilliom and colleagues (2002) found that, for preschool boys who were exposed to harsh and hostile maternal behaviors, negative emotionality (at age 18 months) predicted less adaptive and more maladaptive emotion regulation (at age 3½). However, the results of Study I suggest that, although psychological control may have some positive consequences, it is, at the same time, detrimental to children with a high level of social withdrawal, because it increases their internalizing problem behaviors and distress.

Consistent with the differential susceptibility model (Belsky & Pluess, 2009), one explanation for this result is that socially withdrawn children are generally more vulnerable to maternal messages than other children are. Thus, they are more motivated to please their mothers, and they consequently develop more adaptive behaviors in reaction to maternal psychological control. However, because they do so at the cost of their own autonomy (and maybe try to be more sociable than they otherwise would be), they suffer a certain amount of psychological distress that may increase their fearfulness and anxiety in social situations. This kind of phenomenon may reflect a lack of "committed compliance" (Kochanska & Aksan, 1995) or an "introjected regulation of behavior" (Ryan & Deci, 2000). It has been suggested that this kind of regulation could possibly be motivated by children's desire to receive social approval (Assor, Roth, & Deci, 2004) and maintain their self-esteem (Deci, Ryan, & Williams, 1996), which may cause internal tension and pressure over time (Ryan & Deci, 2000). Given that socially withdrawn children are already at a greater risk of internalizing their problems, the compounding influence of parental psychological control could in fact become the main driver in a developmental cascade (Masten & Cicchetti, 2010). Additionally, as children get older, their internalizing and externalizing scores tend to diverge (Gilliom & Shaw, 2004), so one might expect them to show the opposite effect over time.

The results further showed that, among children with low levels of social withdrawal, paternal psychological control predicted less internalizing problem behaviors. This result is not in line with previous literature and, consequently,

before making any generalizations, further studies need to replicate these results in another sample.

Overall, the results of the present research revealed that maternal and paternal psychological control can play different roles among children with different temperamental characteristics. Although both maternal and paternal psychological control play a similar role in internalizing problem behaviors among highly socially withdrawn children, maternal psychological control also has positive effects on pro-social behaviors but negative effects on externalizing problem behaviors among socially withdrawn children (Study I). Paternal psychological control had negative effects only among children with a difficult temperament, whereas, maternal psychological control had negative effects on children of all temperaments (Study III).

4.4 Practical implications

The present research took into account the child's temperamental characteristics and parenting styles when studying children's social-emotional development and related problem behaviors. Because this kind of systematic, longitudinal research on the joint impacts of the child characteristics and parenting styles is rare, the study provides new information about the developmental processes leading to either adaptive or maladaptive social-emotional pathways. Identifying different developmental trajectories of social-emotional development as well as different risks and protective factors may help explain which kinds of children benefit from which kinds of support. This is in line with the child-environment model of adaptation (Nigg, 2006): the various characteristics of children determine what kind of environmental support is most beneficial for them and the kind of environmental risks they might be particularly vulnerable to. The results of the present research also provide some support for the theoretical notion that, depending on particular characteristics, certain children (that is, socially withdrawn, difficult temperament, behaviorally inhibited, or shy children) are generally more susceptible than others to parental socialization (Belsky & Pluess, 2009).

The research findings have many implications in the contexts of children's mental health services, family, and child welfare. First, findings concerning the parenting styles underlying behavioral problems, on the one hand, and adaptive social and emotional development, on the other, can offer professionals working with families more insight to how to better help and co-operate with parents in cases where children demonstrate problem behaviors. For example, these professionals can guide parents in adopting appropriate parenting techniques and responses to ensure that their children receive the kind of support, responsiveness, and discipline that they need for adaptive social and emotional development. Second, the findings concerning the joint effects of parenting styles and the child's temperamental characteristics on children's social-emotional development can be used to develop and validate interventions that

target not only the child but also the entire family. For example, family support service workers working with difficult temperament children can help parents build a positive relationship with their child and provide them with information on how each child might benefit from different kinds of parenting. Third, studying the different developmental trajectories, risks, and protective factors can help identify which kind of children benefit from which kind of support and in what stages of development. The findings of the present research suggest that, during the transition to school, inhibited and withdrawal children in particular may benefit from high parental support and responsiveness, whereas children with difficult temperaments may benefit from clear limits and maturity demands.

4.5   Strengths and limitations

The present research has several strengths. First, the focus was on a period of rapid growth and increased vulnerability, namely, the primary school years, which constitute an important developmental period in children's social-emotional development, as children begin to spend more time with, peers and demands for social interaction consequently increase (Coplan & Arbeau, 2008). Transitions to school with higher social and emotional competence (e.g., having social skills, emotion knowledge and regulation abilities, and positive interactions with teachers) predict positive feelings about school and also predict academic success later on (e.g., Denham, 2006; Izard et al., 2001; Jacobsen & Hofmann, 1997; Pianta, 1997; Shields et al., 2001). The presence of social-emotional deficiencies while transitioning to primary school may increase the risk of the child's psychopathology and academic failure in the first grade as well as later in life (Denham et al., 1991; Kochenderfer & Ladd, 1996; Raver & Knitzer, 2002; Robins & Rutter, 1990).

Second, data from three longitudinal Finnish studies were applied to answer the research questions. Although the three data sets were different, the findings of the studies were in line with each other. That is, the child's temperamental characteristics, that is, social withdrawal, difficult temperament, behavioral inhibition, or shyness, were found to make children particularly susceptible to parental behaviors (Belsky & Pluess, 2009; Gallagher, 2002). Third, whereas the majority of previous research has focused on the role of mothers, the present research also investigated the role of fathers in children's social and emotional development. Fourth, as a part of the research, Study I aimed to test and compare several competitive theoretical models, that is, the diathesis-stress, differential susceptibility, and vantage sensitivity models.

Some of the limitations of the present research must be noted, as well. First, the level of social withdrawal and shyness in Studies I and III were only measured once, because they were assumed to be stable, innately temperament-related characteristics. However, it is possible that some changes in these characteristics would have taken place over time (Booth-Laforce & Oxford, 2008).

Parenting styles in Studies II and III also were measured only once, which made it impossible to investigate the bidirectional relationship between parenting styles and children's development. Parenting and child behavior have been found to show a bidirectional relationship over time, suggesting that child behaviors influence parenting styles and vice versa (e.g., Lansford et al., 2011). For example, it is possible that children's temperaments and expressions of emotion impact their parents' parenting styles. Serbin, Kingdon, Ruttle, and Stack (2015) found that children's internalizing problem behaviors predicted an increase in positive parenting over time, which subsequently led to a reduction in children's internalizing problem behaviors across a three-year interval. Additionally, in Study II, children's emotions were measured at two follow-up points within one year. Longer-term follow-ups are needed in order to build a bigger picture of the phenomena.

The second limitation is the percentage of fathers in Study I and Study II. The fathers' sample was relatively small compared to the mothers' sample, which may have reduced the statistical power of some of the analyses concerning fathers. The third limitation concerns the scale used to measure social withdrawal in Study I. Although highly reliable, the scale was short, and it was therefore not possible to distinguish between the different subtypes of social withdrawal (e.g., solitary-passive, solitary-active, or anxious). The third limitation is that, in Study II and Study III, all the measures were based on parental reports, that is, the parents described their children's developmental behaviors, temperaments, as well as their own parenting styles. This raises the possibility of reporting bias. Consequently, the data are subject to common-method variance, implying a need to replicate the reported results using different informants when measuring the constructs of interest. In addition, the assessment of social withdrawal in Study I only by the teacher raises the question of whether the peer group should also be considered as a source of information (De Los Reyes, Thomas, Goodman, & Kundey, 2013). Another option would be to use behavioral observations or self-reports of outcome behavior and/or social withdrawal. Fourth, the observed effect sizes were relatively small in Study II. Small sample size may have reduced the statistical power in some of the analyses. Consequently, a larger sample size may be needed in order to detect the group differences. Fifth, the underlying mechanisms behind of the found associations of temperament, parenting and children's social-emotional development were not assessed and, consequently, further research is needed on these mechanisms. Sixth, the reliability of the behavioral control in Study III was relatively low. Finally, all the results were obtained on Finnish children and further research on other regions of the world is needed in order to generalize the findings.

4.6 Future directions

By taking into account the child's temperamental characteristics and parenting styles when studying the antecedents of children's social-emotional development, the present research raises some interesting research topics for the future. First, future research should examine gender differences and similarities when considering the joint effects of the child's temperamental characteristics and their parents' parenting styles on the development of children's social-emotional development. Second, future research should also investigate bidirectional parent-child relationships in greater detail, using long-term cross-lagged longitudinal designs. Third, the majority of research on the role of parenting in children's social-emotional development has focused on mothers, and less is known about the role of fathers in social and emotional development in middle childhood. The present research revealed that fathers also make unique contributions to their children's development (for a review, see Lamb & Lewis, 2010). Consequently, further research is needed to investigate the role of fathers in children's social and emotional development as well as the joint effects of mothers' and fathers' parenting on children's social-emotional development.

4.7 Concluding remarks

The present research focused on the joint effects of the child's temperamental characteristics and their mothers' and fathers' parenting styles on the development of children's social-emotional behaviors in middle childhood. The findings of this research showed, first, that children showing signs of social withdrawal are particularly vulnerable to the negative effects of the lack of maternal affection. Although maternal psychological control was found to be associated with a high level of pro-social skills and a low level of externalizing problem behaviors among these children, it was also related to a high level of internalizing problem behaviors. These results suggest that socially withdrawn children may be at the risk of pleasing their mothers at the cost of their own well-being. The findings of the present research also showed that mothers' and fathers' parenting styles play a role in their children's negative emotions and in related development, particularly among temperamentally inhibited or difficult temperament children. Children with an inhibited temperament, in particular, were found to benefit from high levels of maternal affection, whereas children with a difficult temperament seemed to benefit from maternal behavioral control. Furthermore, the findings of the present research showed that children showing signs of shyness are particularly sensitive to the effects of both maternal and paternal affection in terms of their development of pro-social behaviors. This suggests that parental affection, support, and responsiveness may be very important for the development of pro-social behaviors, especially among shy children.

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YHTEENVETO (SUMMARY)

Vanhemmuustyylien vaikutukset lapsen sosioemotionaaliseen kehitykseen temperamentiltaan erilaisilla lapsilla

Tutkimuksen tarkoituksena oli selvittää äitien ja isien vanhemmuustyylien ja lapsen temperamenttipiirteiden yhteisvaikutuksia lapsen sosioemotionaalisessa kehityksessä varhaisten kouluvuosien aikana. Siirtymää peruskouluun voidaan pitää tärkeänä sosiaalisen ja emotionaalisen kehityksen vaiheena lapsuudessa. Kouluun siirtyessään lapsi alkaa kasvavassa määrin viettää aikaa tovereiden kanssa ja sosiaalisen vuorovaikutuksen vaatimukset lisääntyvät (Coplan & Arbeau, 2008). Tässä tutkimuksessa lasten sosioemotionaalista kehitystä ensimmäisten kouluvuosien aikana tarkastelttin yhtäältä prososiaalisen käyttäytymisen ja positiivisten tunteiden näkökulmasta (adaptiivisen kehityskulun näkökulma) ja toisaalta sisään- ja ulospäinsuuntautuvan ongelmakäyttäytymisen ja negatiivisten tunteiden näkökulmasta (epäsuotuisan kehityskulun näkökulma). Tutkimuksen tavoitteena oli selvittää, missä määrin äitien ja isien vanhemmuustyylit (lämpimyys, behavioraalinen kontrolli ja psykologinen kontrolli) ovat yhteydessä lasten sosioemotionaaliseen kehitykseen ensimmäisten kouluvuosien aikana eri tavoin riippuen lapsen ominaisuuksista. Tarkastelun kohteena oli: (1) missä määrin lapsen taipumuksella sosiaaliseen vetäytymiseen ja vanhemmuustyyleillä on yhteisvaikutuksia lasten sosioemotionaaliseen kehitykseen; (2) missä määrin lapsen temperamenttityypillä ja vanhemmuustyyleillä on yhteisvaikutuksia lasten emotionaaliseen kehitykseen; (3) missä määrin lapsen ujoudella ja vanhemmuustyyleillä on yhteisvaikutuksia lapsen sosiaaliseen kehitykseen.

Kysymyksiin vastaamiseksi toteutettiin kolme osatutkimusta käyttäen kolmea suomalaista pitkittäistutkimusaineistoa. Ensimmäisen osatutkimuksen aineistona käytettiin Alkuportaat-tutkimuksen osa-aineistoa. Osatutkimuksessa seurattiin 314 lasta esikoulusta peruskoulun kolmannelle luokalle keräten tietoa vanhemmilta ja opettajilta. Opettajat arvioivat 314 lapsen (154 tyttöä, 160 poikaa) prososiaalisen käyttäytymisen ja sisään- ja ulospäin suuntautuneen ongelmakäyttäytymisen kolmesti, kerran kunakin kouluvuotena. Äidit (n = 279) ja isät (n = 182) täyttivät samoina ajankohtina kyselylomakkeet, joilla kartoitettiin heidän vanhemmuustyylejään lämpimyyden, behavioraalisen kontrollin ja psykologisen kontrollin osalta. Opettaja-arvio lapsen sosiaalisesta vetäytymisestä toteutettiin esikouluvuoden syksyllä. Toisessa osatutkimuksessa käytettiin VALO-tutkimuksen aineistoa. Tutkimukseen osallistui 153 ensimmäisen luokan lasta (79 tyttöä, 73 poikaa) vanhempineen. Lasten äidit ja isät vastasivat ensimmäisen kouluvuoden syksyllä kyselylomakkeeseen, jolla kartoitettiin heidän vanhemmuustyylejään (lämpimyyttä, behavioraalista kontrollia ja psykologista kontrollia) ja lapsen temperamenttia. Molemmat vanhemmat täyttivät lisäksi strukturoitua päiväkirjaa koskien lapsensa negatiivisia ja positiivisia tunteita viikon ajan ensimmisen kouluvuoden syksyllä ja viikon ajan ensimmäisen kouluvuoden keväällä. Kolmannessa osatutkimuksessa käytettiin Jyväskylä Longi-

tudinal Study of Dyslexia -tutkimuksen aineistoa. Tutkittavina oli 200 lasta äiteineen ja isineen. Tässä raportoidussa osa-tutkimuksessa aineistona käytettiin tutkimustietoa, joka oli kerätty perheiltä lapsen ollessa 3–9 vuotta. Vanhemmat arvioivat lapsensa ujoutta kerran lapsen ollessa kolme vuotias ja lapsen prososiaalista käyttäytymistä viisi kertaa lapsen ollessa 4, 5, 6, 8, ja 9 vuotta. Äidit (n = 185) ja isät (n = 175) täyttivät kyselylomakkeen koskien lämpimyyttään ja behavioraalista kontrolliaan lapsen ollessa 4-vuotias.

Ensimmäisen osatutkimuksen tulokset osoittivat, että erityisesti lapset, joilla oli taipumusta sosiaaliseen vetäytymiseen, olivat alttiita äidin osoittaman vähäisen lämpimyyden kielteisille vaikutuksille. Tämä näkyi lämpimyyden puutteen positiivisena yhteytenä näiden lasten ulospäin suuntautuvaan ongelmakäyttäytymiseen. Tulokset osoittivat toiseksi, että sosiaalisesti vetäytyvien lasten kohdalla äitien ja isien harjoittama psykologinen kontrolli oli yhteydessä lasten runsaampaan sisäänpäinsuuntautuvaan ongelmakäyttäytymiseen, mutta samalla hieman yllättäen äidin suurempi psykologinen kontrolli oli yhteydessä myös näiden lasten runsaampaan prososiaaliseen käyttäytymiseen ja vähäisempään ulospäinsuuntautuvaan ongelmakäyttäytymiseen. Kaiken kaikkiaan ensimmäisen osatutkimuksen tulokset olivat linjassa nk. haavoittuvuus–stressimallin kanssa: sosiaalisesti vetäytyvät lapset olivat alttiimpia lämpimyyden puutteen negatiivisille vaikutuksille kuin lapset, jotka eivät olleet sosiaalisesti vetäytyviä. Lisäksi vaikka äidin käyttämä suurempi psykologinen kontrolli oli yhteydessä sosiaalisesti vetäytyvien lasten korkeampaan prososiaalisuuteen ja vähäisempään ulkoiseen ongelmakäyttäytymiseen, oli se samanaikaisesti yhteydessä lisääntyneeseen sisäänpäin suuntautuvaan oirehdintaa. Tulokset antavat viitteitä siitä, että sosiaalisesti vetäytyvät lapset saattavat olla riskissä miellyttää äitejään oman hyvinvointinsa kustannuksella.

Toisen osatutkimuksen tulokset osoittivat ensinnäkin, että äidin käyttämä psykologinen kontrolli ensimmäisen kouluvuoden syksyllä ennusti ensimmäisen kouluvuoden lopulla lisääntyneitä negatiivisia tunteita kaikilla lapsilla temperamenttityypistä riippumatta. Toiseksi, äidin osoittama runsas lämpimyys ennusti negatiivisten tunteiden vähenemistä ensimmäisen kouluvuoden aikana erityisesti niiden lasten kohdalla, jotka olivat temperamenttityypiltään estyneitä. Kolmanneksi, äidin käyttämä behavioraalinen kontrolli oli yhteydessä negatiivisten tunteiden vähenemiseen ensimmäisen kouluvuoden aikana niiden lasten kohdalla, jotka olivat temperamentiltaan haastavia. Neljänneksi, isän käyttämä psykologinen kontrolli oli yhteydessä lasten lisääntyneisiin negatiivisiin tunteisiin, mutta ainoastaan niiden lasten kohdalla, jotka olivat temperamentiltaan haastavia. Vanhemmuustyylit eivät olleet yhteydessä lasten positiivisiin tunteisiin ensimmäisen kouluvuoden aikana. Tutkimuksen tulokset osoittivat, että äitien ja isien vanhemmuustyylit ovat yhteydessä lasten negatiivisiin tunteisiin ja näiden kehitykseen ensimmäisellä luokalla erityisesti haastavien ja estyneiden lasten kohdalla. Estyneet lapset näyttäisivät hyötyvän erityisesti äidin lämpimyydestä, kun taas haastavat lapset hyötyvät rajoja asettavasta behavioraalisesta kontrollista, mutta kärsivät muita enemmän isän harjoittamasta psykologisesta kontrollista.

Kolmannen osatutkimuksen tulokset osoittivat, että vaikka äidin ja isän osoittama lämpimyys oli positiivisesti yhteydessä sekä ujojen että muiden lasten prososiaaliseen käyttäytymiseen, erityisesti ujot lapset hyötyivät vanhempien lämpimyydestä prososiaalisen käyttäytymisen kehityksen näkökulmasta: mitä enemmän äiti ja isä raportoivat vanhemmuuden lämpimyyttä, sitä enemmän ujojen lasten prososiaaliset taidot lisääntyivät neljän ja yhdeksän ikävuoden välillä. Tulokset osoittivat myös, että isän raportoima behavioraalinen kontrolli oli positiivisesti yhteydessä prososiaalisen käyttäytymisen tasoon neljän vuoden iässä, mutta ainoastaan niillä lapsilla, jotka eivät olleet temperamentiltaan ujoja. Tulokset antavat viitteitä, että erityisesti temperamentiltaan ujot lapset ovat prososiaalisen kehityksensä osalta alttiita vanhempien lämpimyyden tai lämpimyyden puutteen vaikutuksille. Näin ollen vanhemmuuden lämpimyys ja vastaanottavaisuus ja vanhemmilta saatu tuki voivat olla kriittisiä tekijöitä ujojen lasten prososiaalisten taitojen kehityksessä.

Koska systemaattista pitkittäistutkimusta lapsen ominaisuuksien ja vanhemmuustyylien yhdysvaikutuksista on tehty vain vähän, tarjoaa nyt tehty tutkimus uutta tietoa suotuisaan tai epäsuotuisaan sosioemotionaaliseen kehitykseen johtavista kehitysprosesseista. Erilaisten kehityspolkujen ja niiden riski- ja suojaavien tekijöiden tunnistaminen voi auttaa paremmin ymmärtämään, millaisen temperamentin omaavat lapset hyötyvät minkäkinlaisesta vanhemmuudesta. Child–environment model of adaptation (Nigg, 2006) -mallin mukaisesti tämän tutkimuksen tulokset antavat viitteitä siitä, että lapsen ominaisuudet määrittävät, minkälainen ympäristön tuki on hänelle kaikkein hyödyllisin ja minkälaisille ympäristön riskitekijöille hän on kaikkein alttein. Tutkimuksen tulokset tarjoavat myös tukea teoreettiselle huomiolle, jonka mukaan ominaisuuksistaan riippuen toiset lapset ovat alttiimpia ympäristövaikutuksille ja vanhempien sosialisaatiolle kuin toiset (Belsky & Pluess, 2009).

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ORIGINAL PAPERS

I

SOCIAL WITHDRAWAL IN CHILDREN MODERATES THE ASSOCIATION BETWEEN PARENTING STYLES AND THE CHILDREN'S OWN SOCIOEMOTIONAL DEVELOPMENT

by

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Social withdrawal in children moderates the association between parenting styles and the children's own socioemotional development

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Background: Social withdrawal in early childhood is a risk factor for later socioemotional difficulties. This study examined the joint effects of children's social withdrawal and mothers' and fathers' parenting styles on children's socioemotional development. Based on diatheses-stress, vantage sensitivity, and differential susceptibility models, socially withdrawn children were assumed to be more prone to parental influences than others. **Methods:** Teachers rated 314 children on prosocial skills, and internalizing and externalizing behaviors at three points in time between grades 1–3. Mothers ($n = 279$) and fathers ($n = 182$) filled in questionnaires measuring their affection, and their behavioral and psychological control at the same points in time. Teacher reports on children's level of social withdrawal were obtained at the end of kindergarten. **Results:** Panel analysis showed that particularly those children who showed signs of social withdrawal were vulnerable to the negative effects of low maternal affection in terms of externalizing behavior. Moreover, among these children, mothers' and fathers' psychological control predicted high levels of internalizing problem but, at the same time, mothers' psychological control predicted also a high level of prosocial behavior and low levels of externalizing problem. **Conclusions:** The results supported the diathesis–stress model more than the differential susceptibility model. For example, socially withdrawn children were found to be particularly vulnerable to the negative effects of low maternal affection. Although maternal psychological control had positive effects on the prosocial skills of socially withdrawn children, and reduced the amount of externalizing problems, it was at the same time associated with an increase in their internalizing problems. In this way, socially withdrawn children seem to be at risk of pleasing their mothers at the cost of their own well-being. **Keywords:** Parenting styles, socioemotional development, social withdrawal, prosocial skills, problem behavior, diathesis–stress model, differential susceptibility model.

Introduction

A consistent display of solitary behavior when encountering familiar or unfamiliar peers across situations and over time, that is social withdrawal (Rubin & Coplan, 2004), has been shown to increase the risk of socioemotional difficulties later in life (Rubin, Coplan, & Bowker, 2009). One protective factor that may reduce the likelihood that these at-risk children develop a maladaptive developmental trajectory is a favorable parenting style (Degnan & Fox, 2007; Rubin et al., 2009). However, although it has been suggested that socially withdrawn and inhibited children benefit from a different kind of parenting than other children (Gallagher, 2002), and that temperamentally vulnerable children are more influenced by parental socialization than others (Belsky & Pluess, 2009), little is known about the possible joint effects of social withdrawal and parenting styles on children's developmental outcomes. Consequently, the present study examines how parenting styles are associated with a child's socio-

emotional development in different ways, depending on the child's level of social withdrawal.

Social withdrawal and socioemotional development

Behavioral inhibition, shyness, isolation, passivity, social disinterest, unsociability, and social reticence are some of the different terms that have been used in previous literature to refer to socially withdrawn behavior (for a review, see Rubin et al., 2009). Although all of these terms refer to withdrawal, the underlying explanations for them are different. For example, whereas the solitary-passive (cf., unsociability, social disinterest) form of social withdrawal describes children who are disinterested in social interaction and who prefer to play alone, solitary-active (cf., actively isolated, rejected) children withdraw from social interaction because peers do not allow these children to interact with them (Coplan, Rubin, Fox, Calkins, & Stewart, 1994; Harrist, Zaia, Bates, Dodge, & Pettit, 1997). Reticence (cf., anxiety-type of solitude, passive anxiety), in turn, describes children who avoid interaction with peers due to their own fearfulness of social interaction (Harrist et al., 1997). Reticence is also

thought to be an indicator of temperamental shyness (Coplan et al., 1994), conceptualized as wariness and anxiety in the face of social novelty or evaluation (Rubin et al., 2009), or in social contexts overall (Coplan et al., 2009). Another concept closely related to shyness is that of behavioral inhibition, which refers to a biologically rooted wariness of novel people, places and things (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). In the present study, the focus is on overall withdrawn behavior rather than on any of the specific types of it.

Children showing social withdrawal (particularly reticence) have been found to be less prosocial (Hastings, Rubin, & DeRose, 2005) and less skilled in solving interpersonal problems (Rubin, Burgess, & Hastings, 2002) than other children. There is also a higher risk of them to evidence internalizing problem behaviors, that is to show symptoms of depression or anxiety (Rubin et al., 2009). The limited amount of research that exist on the role of social withdrawal or related constructs in developing externalized problem behavior has yielded somewhat inconsistent results (Pine, Cohen, Cohen, & Brook, 2000; Vitaro, Brendgen, & Tremblay, 2002; Williams et al., 2009).

Parenting styles and socioemotional development

Family forms an important context for children's socioemotional development (Hart, Newell, & Olsen, 2003). One of the most often investigated aspects regarding family is parenting styles. The three parenting style dimensions – affection or warmth; behavioral control; and psychological control – have each been shown to be associated with children's socioemotional development. For example, warm, responsive and supportive parenting promotes the development of children's emotion regulation and social skills (Hart et al., 2003). Also parental behavioral control (e.g. setting limits, showing consistency in discipline, and demanding maturity) predicts adaptive child development and low levels of externalizing problem behavior (Barber, 1996; Hart et al., 2003). A high level of psychological control has, in turn, been shown to lead to internalizing problems, such as depression, anxiety and internalized distress (Barber, 1996).

Research on parenting of socially withdrawn children has shown that parents of such children have a tendency to use an oversolicitous style of parenting characterized by high affection combined with over-controlling or overprotective behaviors (Rubin, Hastings, Stewart, Henderson, & Chen, 1997). Children's early shyness has also been linked to parents' later lack of encouragement for their children's independence (Rubin, Nelson, Hastings, & Asendorph, 1999). This kind of intrusive parenting has been shown to lead to an even higher level of social withdrawal later on in childhood (Degnan, Calkins, Keane, & Hill-Soderlund, 2008; Rubin et al., 2002).

The joint effects of social withdrawal and parenting styles

According to the child–environment model of adaptation (Nigg, 2006), various characteristics in children determine what kind of environmental support is most beneficial for them and the kind of environmental risks they might be particularly vulnerable to. It has also been suggested that, depending on particular characteristics, certain children are generally more susceptible than others to parental socialization (Belsky & Pluess, 2009). Three alternative models have been used to explain the differential effects of environment on individuals. The diathesis–stress model posits that due to some endogenous characteristic of 'vulnerability', some individuals are more vulnerable than others to the adverse effects of exposure to negative experiences (Belsky & Pluess, 2009; Nigg, 2006). The differential susceptibility model (Belsky & Pluess, 2009) goes one step further by suggesting that individuals who are the most vulnerable to negative environmental impacts also gain the most from positive experiences and environments. According to the vantage sensitivity model, in turn, some individuals are more sensitive than others to environmental advantages, in particular (Pluess & Belsky, 2013).

One child characteristic that has been shown to make children particularly susceptible to parental influence is temperamental fearfulness or negative reactivity to novelty (Belsky & Pluess, 2009; Gallagher, 2002). After infancy, this temperamental characteristic often manifests itself as social withdrawal and inhibited behavior (Degnan & Fox, 2007). It can therefore be assumed that social withdrawal in later childhood is linked to the child being more vulnerable to parental influences (Gallagher, 2002). Following this line of thought further, Williams et al. (2009) found that mothers' permissive parenting (e.g. ignoring misbehavior) was associated with children's internalizing problems at the age of 4, but only among those children who were behaviorally inhibited. In another study, Russell, Hart, Robinson, and Olsen (2003) found that, with 4–5-year-old children, authoritarian parenting (i.e. a high level of parental control combined with low affection) was negatively associated with the children's social behavior among unsociable children, but not among those that were more sociable. In the study by Hastings et al. (2005), authoritative and authoritarian parenting were differently associated with girls' prosocial behavior, depending on the girls' level of behavioral inhibition: temperamentally inhibited girls were more prosocial at the age of 4 if their mothers were more authoritarian, but less prosocial if their mothers were authoritative (high levels of affection and behavioral control), whereas the opposite pattern was found for less inhibited girls. Overall, although lot is known about the role of social withdrawal, on the one hand, and the role of parenting styles, on the other, only

few studies have thus far been conducted on their joint effects on children's socioemotional development.

Aims

This study examined whether children's social withdrawal in combination with mothers' and fathers' parenting styles would show joint effects on the children's socioemotional development. Parental affection and behavioral control were assumed to be positively associated with children's prosocial skills and negatively with their externalizing and internalizing behaviors (Hart et al., 2003). Parental psychological control, in turn, was assumed to be negatively associated with prosocial behavior and positively with different forms of problem behavior (Barber, 1996). Our overall assumption was that these associations would be stronger among children showing socially withdrawn behavior than among other children. In addition to this, we set three alternative sub-hypotheses: (a) socially withdrawn children are more vulnerable than others to the negative effects of parenting, as suggested by the diathesis–stress model; (b) socially withdrawn children are more sensitive than others to the positive effects of parenting, as suggested by the vantage sensitivity model; (c) socially withdrawn children are more sensitive to both the negative and positive effects of parenting than others, as suggested by the differential susceptibility model (Belsky & Pluess, 2009; Pluess & Belsky, 2013).

The present study was carried out during the children's transition to elementary school. This developmental period is an important period for examining social withdrawal and its consequences, as children begin to spend more time with peers and the demands for social interaction increase (Coplan & Arbeau, 2008).

Methods

Participants and procedure

A total of 378 children (182 girls, 196 boys) were selected for our study from a larger sample of about 2000 children who were participating in the First Steps study (Ahonen et al., 2007). This study followed up a community sample of children from kindergarten to elementary school, with data being simultaneously gathered from both parents and teachers throughout 2006–2011. Parental consent was requested and received for all the children involved. The target sample was determined by randomly selecting a small number of students from each grade 1 classroom. Typically, three children were selected from each classroom ($M = 2.53$, $SD = 0.84$), but this number could vary from one to six (relative to the size of the class). The reason for creating a subsample was to minimize teachers' workloads. Comparisons between the random target sample ($N = 378$) and the larger sample ($N \approx 2000$) revealed that any difference between them was not statistically significant ($p < .05$) either in terms of the children's levels of achievement, parental well-being, parental education, or gender distribution. Information on both the children's levels of

social withdrawal and their socioemotional development was available for 314 of the 378 children in the target sample (154 girls, 160 boys). Information on parenting styles was available for 279 of the mothers and for 182 fathers of the children. Consequently, these sample numbers were reflected in the final analysis.

The vast majority of children in the sample (76%) came from nuclear families, 12% were from single-parent families, and 12% from blended families. A total of 25% of the children's mothers had a Master's degree or higher, 37% had a Bachelor's or vocational college degree, 31% had secondary education, and 7% had no degree beyond comprehensive school. The sample was fairly representative of the level of education among the general population in Finland (Statistics Finland, 2007).

Children's prosocial skills and their levels of internalizing and externalizing problem behavior were rated by their school teacher once every year for 3 years: in grade 1 (April, 2008), grade 2 (April, 2009), and grade 3 (April, 2010). Children's social withdrawal was rated at the end of the kindergarten by their kindergarten teachers. Parents or legal guardians were asked to complete parental questionnaires at home concerning their parenting styles, independently, and without conferring. Mothers and fathers filled in these questionnaires at the same three points in time as the school teachers filled in their questionnaires concerning the children.

At the beginning of the study, the children were in kindergarten and were 6 years old or turning seven within the next 4 months ($M = 73.96$ months, $SD = 3.35$ months). They came from schools that were situated in three medium-sized towns and in one more rural area. Two of them were in Central Finland, one in Western Finland, and one in Eastern Finland. A total of 236 teachers of kindergarten, 136 of grade 1, 133 of grade 2, and 136 of grade 3 participated in the study. The teachers differed from kindergarten to grade 1 but between grades 1 and 2 they were usually the same teacher (68% of cases). Between grades 2 and 3 however, they again usually changed (75% of cases).

Measures

Social withdrawal.   The children's social withdrawal was evaluated by their kindergarten teachers, using three items. Two of the items (*The child is withdrawn from other children; The child avoids working in a group with other children*) were drawn from the Children's Short Social Withdrawal Scale (see Kiuru et al., 2012), and were rated on a 5-point scale (1 = *never*, to 5 = *very often*). The third item (Enthusiastically participates in group activities) was drawn from Multisource Assessment of Children's Social Competence (MASCS; Juntti-la, Voeten, Kaukiainen, & Vauras, 2006), and was rated on a 4-point scale (1 = *never*, to 4 = *very frequently*). The score for social withdrawal was constructed by first reversing the positively worded item (third item), and subsequently converting all three items to the same scale (0 = *never*, to 4 = *very often/very frequently*). The last step was to then calculate the mean across all four items. The Cronbach's α for the total score was .70.

Internalizing and externalizing problem behavior and prosocial skills.   During grades 1–3, teachers were asked to rate each child on a 3-point rating scale (1 = *does not apply*, 2 = *applies partly*, 3 = *certainly applies*) using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Three SDQ subscales – measuring externalizing problem behavior (Conduct Problems subscale, five items; e.g. *Often has temper tantrums*), internalizing problem behavior (Emotional Symptoms subscale, five items; e.g. *Is often unhappy, down-hearted or fearful*), and prosocial skills (five items; e.g. *Is considerate of other people's feelings*) – were

utilized. Mean scores for these subscales were calculated at each of the three time points. The Cronbach's α at each time point ranged from .77 to .81 for externalizing problems, and from .73 to .75 for internalizing problems, but remained static at .85 for prosocial skills.

Mothers' and fathers' parenting styles. Mothers' and fathers' parenting styles were measured using a revised Finnish version (Aunola & Nurmi, 2004) of Block's Child-Rearing Practices Report (CRPR; Roberts, Block, & Block, 1984) that included 19 items measured on a 5-point scale (1 = *does not fit me at all*; 5 = *fits me very well*). Mean scores were then calculated for different parenting style dimensions at each of the three time points. The affection dimension (10 items, e.g. *I often show my child that I love him/her*) measured parental warmth and responsiveness. The behavioral control dimension (five items, e.g. *My child should learn that we have rules in our family*) measured demandingness, limit setting, and maturity demands. The psychological control dimension (four items, e.g. *I believe my child should be aware of how much I have done for him/her*) measured parental attitudes appealing to guilt and expressing disappointment. The Cronbach's α reliability for each of the three parenting style dimensions at different measurement points ranged from .84 to .85 for mothers' affection, and from .82 to .84 for fathers' affection; from .62 to .71 for mothers' behavioral control, and from .72 to .76 for fathers' behavioral control; from .69 to .76 for mothers' psychological control, and from .72 to .83 for fathers' psychological control.

Analytical strategy

The analyses were conducted using panel data regression techniques (Gujarati, 2003), which combines a time-series with cross-sectional analyses. Panel analysis also enables taking into account any variation between individuals regarding their typical levels. In this study, we took account the 273 cross-sections (in this case, individuals) and three time points (i.e. grade 1, grade 2, grade 3) when examining our research questions, that is how children's social withdrawal in kindergarten and their parents' parenting styles during grades 1–3 predict the children's internalizing and externalizing problem behaviors and prosocial skills during the first 3 years of elementary school. The analyses were carried out separately for mothers' and fathers' parenting styles, and separately for each socioemotional outcome variable. The models included the main effects of children's social withdrawal and the three parenting style dimensions as well as all interaction terms between social withdrawal and parenting styles, as independent variables. In all of the models, sociodemographic characteristics including the child's gender, parents' education, family's socioeconomic status, and the parental status (single parent or nonsingle parent) were controlled for. The analyses were performed using Gretl software (Gnu Regression, Econometrics, and Time Series Library, Ver. 1.9.4; see Lucchetti, 2011). The parameters of the models were estimated using the *GLS* (generalized least squares) technique. A more detailed description of the panel analyses that were conducted is provided as online supporting information.

In this study, the interest was on the joint effect of children's social withdrawal and parenting styles on children's socioemotional development. To examine these joint effects the interaction terms (*Social withdrawal × Affection; Social withdrawal × Behavioral control;* and *Social withdrawal × Psychological control*) found to be statistically significant ($p < .05$, two-tailed test) were first interpreted using Aiken and West's (1991) procedure. In this procedure, simple slopes for parenting style variables in the prediction of children's socioemotional development were calculated and presented using standardized scores separately for children who showed either low (−1 *SD*) or high (+1 *SD*) levels of social withdrawal. Then, in

order to explicitly test the competing models, regions of significance (RoS) analyses were carried out using the procedure suggested by Roisman et al. (2012). In these analyses, the statistical significance of the simple slopes pertaining to children who showed low or high levels of social withdrawal, as well as RoS (see also Preacher, Curran, & Bauer, 2006), were calculated first. In the present study, RoS-*z* indicates the range of values of social withdrawal (*z*) in which the parenting style variable (*x*) and socioemotional development variable (*y*) are significantly associated. In turn, RoS-*x* indicates the specific values of the parenting style variable (*x*) below which and above which the regression lines for the children showing high and low social withdrawal (*z*) differ significantly in terms of socioemotional development variable (*y*). RoS-*x* values provide a basis for making conclusions regarding the extent to which the results support the competing three theories. This is done by inspecting whether the association between the social withdrawal and socioemotional development is significant only at low (diathesis–stress), only at high (vantage sensitivity), or both at low and high (differential susceptibility) values of specific parental variable. If RoS-*x* is within the bounds of −2 to +2, then the result provides support for the differential susceptibility model (Roisman et al., 2012). Next, *PoI* indices were calculated. *PoI* values are, unlike *p* values, robust against sample size. According to Roisman et al. (2012), *PoI* values between around .40 and .60 represent an interaction effect highly consistent with the differential susceptibility model, whereas values close to zero provide evidence for the diathesis–stress model, and values near 1.00 for the counterintuitive diathesis–stress model, that is vantage sensitivity. It should be noted, however, that the interpretation of the *PoI* value depends on whether the *x* variable (in this case for parenting) is scaled from a negative to a positive range or vice versa. For example, if the *x* variable represents more of a negative than positive environmental effect (e.g. psychological control), then *PoI* values close to zero will support the vantage sensitivity model while those near 1.00 support the diathesis–stress model.

Results

Table 1 shows the means and standard deviations of the observed variables separately at different measurement points. The Tables S1 and S2 show correlations between the variables across the measurement points, and the results of the panel analyses, respectively. Meanwhile, Table 2 shows the regions of significance, *PoI* indices and crossover points for the interaction terms that were found to be statistically significant.

The joint effects of social withdrawal and mothers' parenting styles

Four statistically significant ($p < .05$) interactions were found between social withdrawal and parenting when predicting children's socioemotional development from their mothers' style of parenting (Table S2). First, the results showed that children's social withdrawal and maternal affection had a joint impact on children's externalizing problems. Among children with a relatively high level of social withdrawal, mothers' affection negatively predicted children's externalizing problem behavior ($\beta = -.20$, $p < .001$; Figure 1). In comparison, among children with a low level of social withdrawal, the mothers'

Table 1 Means (M) and standard deviations (SD) of study variables at different measurement points

	Time 1 (7 years)		Time 2 (8 years)		Time 3 (9 years)		Time 1,2,3	
	M	SD	M	SD	M	SD	M	SD
Prosocial[a]	2.20	0.53	2.21	0.53	2.15	0.51	2.19	0.52
Internalizing[a]	1.29	0.38	1.26	0.36	1.27	0.36	1.27	0.37
Externalizing[a]	1.47	0.45	1.46	0.47	1.45	0.47	1.46	0.46
Mothers' Affection[b]	4.27	0.45	4.27	0.46	4.28	0.45	4.27	0.45
Mothers' Behavioral control[b]	3.77	0.47	3.78	0.52	3.76	0.52	3.77	0.50
Mothers' Psychological control[b]	2.59	0.65	2.58	0.69	2.56	0.71	2.57	0.68
Fathers' Affection[b]	4.07	0.45	4.07	0.43	4.04	0.45	4.06	0.44
Fathers' Behavioral control[b]	3.72	0.53	3.70	0.51	3.64	0.55	3.69	0.52
Fathers' Psychological control[b]	2.70	0.69	2.76	0.72	2.78	0.78	2.74	0.73
Social withdrawal[c,d]	0.73	0.72						

[a]Children's prosocial, internalizing and externalizing behavior were measured using Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997).
[b]Parental affection, behavioral control and psychological control were measured using Finnish version (Aunola & Nurmi, 2004) of CRPR (Roberts et al., 1984).
[c]Social withdrawal was measured in kindergarten when the children were 6 year old.
[d]Social withdrawal was measured using the Children's Short Social Withdrawal Scale (two items, see Kiuru et al., 2012), and MASCS (one item, Junttila et al., 2006).

Table 2 Regression estimates, RoS, and proportion of interaction index (PoI) for statistically significant ($p < .05$) social withdrawal $\times$ parenting style variable interactions

|	Regression estimates				RoS Z		RoS X			
							Differential susceptibility/diatheses-stress indices			
Outcome	b_0	b_1	b_2	b_3	Lower bound	Higher bound	Lower bound	Higher bound	PoI	Crossover
Mothers										
Prosocial skills	.00	.06[1]	−.36	.10	−3.95	0.34	1.64	21.31	.07	3.45
Internalizing behaviors	−.01	.07[a]	.28	.08	0.33	7.72	−1.33	35.12	.93	3.46
Externalizing behaviors	−.02	−.04[a]	.22	−.08	−2.21	0.37	0.96	10.49	.02	2.60
Externalizing behaviors	−.02	−.11[b]	.22	−.09	−26.73	−0.42	0.81	52.51	.01	2.37
Fathers										
Internalizing behaviors	−.09	−.05[a]	.26	.23	−0.25	0.84	−2.44	−0.44	.93	−1.13
Internalizing behaviors	−.09	−.00[c]	.26	−.14	−1.87	1.87	0.65	21.02	.00	1.91

b_0 = intercept, b_1 = main effect of parenting style variable X: [a]Psychological control, [b]affection, [c]behavioral control, b_2 = main effect of moderator variable social withdrawal Z, b_3 = interaction effect between moderator social withdrawal variable Z and parenting style variable X; RoS, regions of significance (see visualization of these regions in Figures 1–3), RoS Z refers to the RoS with respect to temperament and RoS X refers to RoS with respect to parenting; PoI, proportion of interaction; Cross-over represents the value of parenting variable (X) at which the regression lines intersect.

affection had no impact on externalizing behavior ($\beta = -.02$, $p = .71$). The regions of significance and the *PoI* value (Figure 1; Table 2) suggest that this pattern of results supports the diathesis–stress model: the children who showed high levels of social withdrawal were particularly vulnerable to the negative effects of low maternal affection.

The results showed further that the impact of mothers' psychological control on their children's prosocial behavior and externalizing and internalizing problems were dependent on the level of the children's social withdrawal (see Table S2 and Figures 1 and 2). The results for internalizing problem behavior showed that mothers' psychological control predicted greater internalizing problems among children who showed a relatively high level of social withdrawal ($\beta = .15$, $p < .05$) but not among those with a low level of social withdrawal ($\beta = -.01$, $p = .82$). The regions of significance (Figure 1, Table 2), as well as the *PoI* again support the diathesis–stress model: the children who showed high levels of social withdrawal were particularly vulnerable to the negative effects of maternal psychological control.

However, the results for prosocial skills and externalizing problem behavior (Figure 2, Table 2)
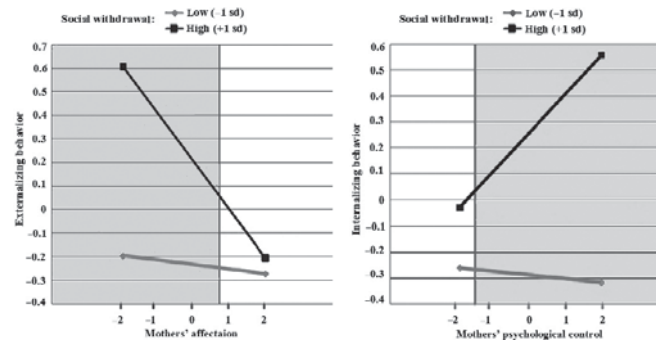
Figure 1 The role of mothers' affection (left graph) and psychological control (right graph) in relation to their children's externalizing and internalizing problem behavior, respectively, regarding children showing a relatively high level of social withdrawal (+1*SD*, high) and children showing no signs of social withdrawal (−1*SD*, low). Gray shaded areas denote regions where the two lines statistically significantly differ
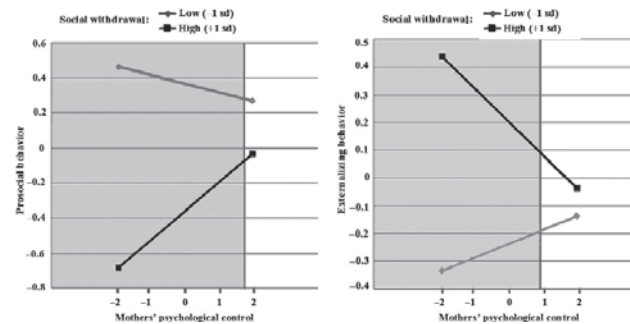
Figure 2 The role of mothers' psychological control in relation to their children's prosocial behavior (left graph) and externalizing behavior (right graph), regarding children showing a relatively high level of social withdrawal (+1*SD*, high) and children showing no signs of social withdrawal (−1*SD*, low). Gray shaded areas denote regions where the two lines statistically significantly differ

were unexpected. Among children with a relatively high level of social withdrawal, mothers' psychological control predicted greater prosocial skills ($\beta = .16$, $p < .05$) and less externalizing problems ($\beta = -.12$, $p < .01$). Among children with a low level of social withdrawal (Figure 2), in turn, mothers' psychological control had no impact on either their children's prosocial skills ($\beta = -.05$, $p = 0.44$) or externalizing problems ($\beta = .05$, $p = .27$). Again these results, according to the regions of significance and the *PoI* indices, support the diathesis–stress model (but in an unexpected way): the children with a high level of social withdrawal were particularly vulnerable to the negative effects of low maternal psychological control.

The joint effects of social withdrawal and fathers' parenting styles

Two statistically significant ($p < .05$) interactions were found between social withdrawal and parenting

when predicting children's socioemotional development from their fathers' style of parenting (Table S2). As with mothers, fathers' psychological control (see Figure 3) predicted greater internalizing problem behavior among children with a high level of social withdrawal ($\beta = .18$, $p < 0.05$). In turn, among children with a low level of social withdrawal, the fathers' psychological control predicted less internalizing problems ($\beta = -.29$, $p < .001$). The results concerning the regions of significance (see Figure 1, Table 2) and the *PoI* index were consistent with the diathesis–stress model: the children who showed high levels of social withdrawal were particularly vulnerable to the negative effects of paternal psychological control. However, the fact that the slope was significant in the other direction among nonwithdrawn children supports the vantage sensitivity model: the children who showed low levels of social withdrawal were more susceptible to the positive effects of paternal psychological control. Overall, the patterns found in these results are consistent with the child-environment

model, as paternal psychological control had a differential effect on children's internalizing problems, depending on the level of social withdrawal.

Second, among children with a relatively high level of social withdrawal ($\beta = -.14$, $p < .10$), fathers' behavioral control was marginally negatively associated with the children's internalizing problems. In turn, among children with a low level of social withdrawal ($\beta = .14$, $p < .10$), fathers' behavioral control was marginally positively associated with the children's internalizing problems. The results concerning the regions of significance (see Figure 1, Table 2) and the *PoI* index were consistent with the diathesis–stress model: the children with a high level of social withdrawal were vulnerable to the negative effects of low paternal behavioral control. However, the result that the slope was marginally significant in the opposite direction among nonwithdrawn children supports the vantage sensitivity model: the children with a low level of social withdrawal were more susceptible to the positive effects of low paternal behavioral control. Overall, as with the psychological control results, the patterns found are consistent with the child–environment model, that is paternal behavioral control had a differential effect on children's internalizing problems, depending on their level of social withdrawal.

Effects of parenting styles unaffected by the level of children's social withdrawal

The results showed further that there were some main effects of parenting styles on children's socioemotional development that were not dependent on the level of children's social withdrawal (see Table S2). First, both mothers' and fathers' affection was positively associated with children's prosocial skills. Second, mothers' behavioral control was associated negatively with children's prosocial skills and positively with their externalizing behavior.

Discussion

This study aimed to examine the joint effects of children's social withdrawal and the parenting styles of both their mothers and fathers on their socioemotional development during the first years of elementary school. The results revealed that children showing a relatively high level of social withdrawal were more vulnerable than other children to the negative effects of low maternal affection with respect to externalizing problem behavior. Moreover, although maternal psychological control had positive effect on socially withdrawn children in terms of increased prosocial skills and decreased externalizing problems, these positive changes associated with psychological control did not come without a cost: while the visible behavior of children evidencing social withdrawal behavior improved, their internalizing problem behavior increased.

The aim of this study was to examine the extent to which the associations of mothers' and fathers' parenting styles with children's socioemotional development are different depending on the level of children's social withdrawal. The results showed, first, that a lack of maternal affection was linked to an increase in externalizing behavior, but only among the more socially withdrawn children. This result is in accordance with the diathesis-stress model by suggesting that children with a high level of social withdrawal behavior are more vulnerable to the negative impacts of low maternal affection than are other children. One possible mechanism that might explain this result is that since children who are anxious and withdrawn are often rejected by their peers (Booth, Rose-Krasnor, McKinnon, & Rubin, 1994), maternal support and warmth forms an important alternative source of emotional support for them. Another explanation is that, since a warm and positive parent–child relationship is characterized by better parent–child communication and more usage of problem-focused coping styles and social
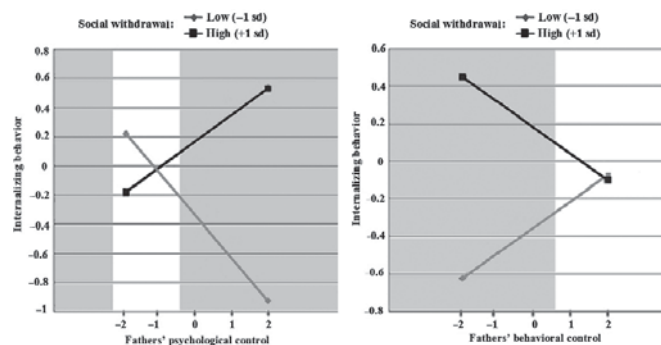
Figure 3 The role of fathers' psychological (left graph) and behavioral control (right graph) in relation to their children's internalizing problem behavior, regarding children showing a relatively high level of social withdrawal (+1*SD*, high) and children showing no signs of social withdrawal (−1*SD*, low). Gray shaded areas denote regions where the two lines statistically significantly differ

support (Ranson & Urichuk, 2008), this kind of mothering provides the emotional support that socially withdrawn children need. In addition, it helps them to learn more adaptive ways of communicating their emotions than simply externalizing their problems.

The results of this study showed further that parents' psychological control played a significant role particularly in the socioemotional development of children showing signs of social withdrawal. This finding was partly expected and consistent with our hypotheses: the higher the level of maternal and paternal psychological control, the higher the level of internalizing problem behavior among children with a relatively high level of social withdrawal. Consistent with the diathesis–stress model (Belsky & Pluess, 2009), the results of the present study suggest that children who show signs of social withdrawal are more vulnerable to the negative effects of psychological control than are other children when it comes to internalizing problems.

However, the results of this study also indicated that among the more socially withdrawn children, maternal psychological control predicted higher levels of prosocial skills and lower levels of externalizing behavior problems. Among the less socially withdrawn children, maternal psychological control was found to have no effect. These unexpected results suggest that maternal psychological control may also have positive consequences for the more socially withdrawn children. Previously, Russell et al. (2003) found that authoritarian mothering characterized by negative maternal control predicted a reduction in externalizing problem behavior over time among behaviorally inhibited children (see also Gallagher, 2002).

The results of this study suggest, however, that although psychological control may have some positive consequences, it is, at the same time, detrimental to children showing socially withdrawn behavior, because it increases their internalizing problem behavior and distress. One explanation for this result is that socially withdrawn children are generally more susceptible to maternal messages than other children (which would correspond with the differential susceptibility model), and thus are more motivated to please their mothers. As a consequence, they develop more adaptive behaviors in reaction to maternal psychological control. However, because they do so at the cost of their own autonomy (and maybe try to be more sociable than they otherwise would be), they suffer a certain amount of psychological distress that may increase their anxiety and fearfulness in social situations. This kind of phenomenon may reflect a lack of 'committed compliance' (Kochanska & Aksan, 1995), or an 'introjected regulation of behavior' (Ryan & Deci, 2000). It has been suggested that this kind of regulation could be possibly motivated by children's desire to receive social approval (Assor, Roth, & Deci,

2004) and maintain their self-esteem (Deci, Ryan, & Williams, 1996), which may cause internal tension and pressure over time (Ryan & Deci, 2000). Given that socially withdrawn children are already at a greater risk of internalizing their problems as it is, the compounding influence of parental psychological control is not just a cost, but could in fact become main driver in a developmental cascade (Masten & Cicchetti, 2010). Also, as children get older, their internalizing and externalizing scores tend to diverge (Gilliom & Shaw, 2004), so one might expect them to show the opposite effect over time.

Another result among the more socially withdrawn children was that paternal behavioral control had positive consequences, whereas permissive fathering (i.e. a lack of control) was associated with greater internalizing problems. Among the less socially withdrawn children, the result was the opposite. These results partly correspond with the findings in research by Williams et al. (2009), in which permissive mothering was associated with greater internalizing behaviors among inhibited children but not among noninhibited children. They went on to suggest that fearful and inhibited children may benefit from more parental control since it could provide the structure these children need to interact in social situations.

There were several limitations to this study that must be taken into account. First, the level of social withdrawal was only measured at kindergarten. This was because we assumed it to be a stable, innately temperament-related characteristic. However, it is possible that some changes to this characteristic take place over time (Booth-Laforce & Oxford, 2008). Second, the percentage of fathers in the sample was relatively small compared to that of mothers, which decreased the statistical power of some of the analyses concerning fathers. Thirdly, although highly reliable, the scale used to measure social withdrawal was relatively small and also it was not possible to distinguish between the various subtypes of social withdrawal, e.g. solitary-passive, solitary-active, or anxious. Fourthly, one might question whether the social lives of children should be assessed by teachers and/or parents or whether it would be better to also consider the peer group as one of the informants (De Los Reyes, Thomas, Goodman, & Kundey, 2013). Another option would be to use behavioral observations or self-reports of outcome behavior and/or social withdrawal. Finally, due to the small size of the sample, it was not possible to examine the effect of three-way interactions on children's socioemotional development (e.g. gender/social withdrawal/ affection; or social withdrawal/affection/psychological control).

Conclusion

Overall, the results of this study suggest that children showing signs of social withdrawal, in particular,

are vulnerable to the negative effects of a lack of maternal affection. Although maternal psychological control was found to be associated with a high level of prosocial skill and low level of externalizing problems among these children, it was nonetheless also related to a high level of internalizing problems. These results suggest that socially withdrawn children may be at risk of pleasing their mothers at the cost of their own well-being.

Supporting information

Additional Supporting Information may be found in the online version of this article:

Table S1 Correlations of study variables for mothers and fathers (above and below the diagonal, respectively).

Table S2 Random effects regression for parenting styles and children's socioemotional development: standardized beta coefficients.

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Key points

- Children showing signs of social withdrawal are particularly vulnerable to the negative effects of a lack of maternal affection.
- Maternal psychological control of socially withdrawn children is associated with an increase in their prosocial behavior and a decrease in their externalizing problems.
- Parental psychological control of socially withdrawn children is associated with an increase in their internalizing problems.

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Online appendix for - Social Withdrawal in Children Moderates the Association Between Parenting Styles and the Children's Own Socioemotional Development
by Zarra-Nezhad et al

Supplementary S1: Analytical Strategy

The analyses were carried out using panel data regression techniques which enables studying particular subjects from multiple sites, such as from different school grades, periodically observed over a defined time frame (Gujarati, 2003). The combination of time series with cross-sections can enhance the quality and quantity of data in ways that would be impossible using only one of these two approaches (Gujarati, 2003). For example, the replication of certain associations (e.g., associations between parenting styles and socioemotional development) across time (e.g., across ages/grades) may provide more generalizable results than analyzing only one age/grade level. Panel analysis also enables taking into account any variation between individuals regarding their typical levels. In other words, the dependency of observations (i.e., repeated measures pertaining to the same individual) is handled in the proper way.

The panel data of the present study included two dimensions of X_{it} ($x_{it,1}$, $x_{it,2}$, . . . , $x_{it,K}$), in which i denotes the cross-sectional unit ($i = 1, . . . , N$; $N = 279$ for mothers and $N = 182$ for fathers) and t denotes the time of the observation ($t = 1, . . . , T$, $T = 3$). In this study, *random effects* panel models were applied because they enabled analyzing the time-invariant *early social withdrawal* variable (measured in kindergarten) and socio-demographic characteristics in the proper way. The following equation was used for the random effects panel model:

$$y_{it} = \beta_0 + \beta_{1i}x_{1it} + \beta_{2i}x_{2it} + \ldots + \beta_{ki}x_{kit} + \alpha_i + \varepsilon_{it}$$

where $i = 1,\ldots 279$ (models including mothers' parenting styles) or $1,\ldots 182$ (models including fathers' parenting styles) individuals, $t = 1^{st}$, 2nd, 3rd time point, $k = 1,\ldots$ k number of explanatory variables.

In the equation, β_0 is an intercept capturing the level that varies between individuals (i.e., cross-sectional units), but which is constant over time. β_{ki}, in turn, are the coefficients to be estimated for each explanatory variable x_{kit}: Time-invariant explanatory variables (i.e., social withdrawal and socio-demographic characteristics) have constant values across time, t, while values of time-varying explanatory variables change across time. The random effects model assumes that the two error components, a_i and ε_{it}, are independent from each other; a_i captures the specific time effects that vary over time but are constant between individuals (i.e., cross-sectional units), whereas ε_{it} is the random disturbance.

Supplementary Table S1: Correlations of Study Variables for Mothers and Fathers

(above and below the diagonal, respectively)

	1.	2.	3.	4.	5.	6.	7.
1. Prosocial	1	-.09**	-.57***	.17***	-.14***	-.07	-.31***
2. Internalizing	-.09**	1	.13***	-.13**	.04	.07	.22***
3. Externalizing	-.57***	.13***	1	-.22***	.21***	.07	.28***
4. Affection	.19***	-.02	-.16***	1	-.01	-.04	-.10**
5. Behavioral control	.02	-.02	.06	.00	1	.37***	.01
6. Psychological control	.01	-.02	.02	-.06	.38***	1	.07
7. Social withdrawal	-.31***	.22***	.28***	-.10*	-.03	-.03	1

*** $p < .001$, ** $p < .01$, * $p < .05$

II

PARENTING STYLES AND CHILDREN'S EMOTIONAL DEVELOPMENT DURING THE FIRST GRADE: THE MODERATING ROLE OF CHILD TEMPERAMENT

by

Maryam Zarra-Nezhad, Kaisa Aunola, Noona Kiuru, Sari Mullola, & Ali Moazami-Goodarzi, 2015

Psychology & Psychotherapy

Parenting Styles and Children's Emotional Development during the First Grade: The Moderating Role of Child Temperament

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Abstract

This study investigated the associations between parenting styles (affection, behavioral control, and psychological control) and children's emotional development (emotion expression) during the first grade of primary school, and the moderating role of children's temperament (easy, difficult, and inhibited) in these associations. Mothers and fathers of 152 children responded to a questionnaire concerning their parenting styles and their child's temperament at the beginning of their child's first grade (Time 1). They also filled in a structured diary questionnaire concerning their child's negative and positive emotions over seven successive days (diary) at the beginning (Time 1) and at the end (Time 2) of their child's first grade. The results showed that mothers' psychological control at Time 1 was associated with a subsequent high level of negative emotions among children, independently of the child's temperament. Mothers' high affection, in turn, was associated with subsequently low levels of negative emotions, particularly among children with inhibited temperament. Mothers' behavioral control, on the other hand, was associated with low levels of negative emotions among children with difficult temperament. Fathers' psychological control was associated with subsequently high levels of negative emotions among children with difficult temperament. No associations were found between parenting styles and children's positive emotions.

Keywords: Parenting styles; Temperament; Negative and positive emotions; Differential susceptibility model; Goodness-of-fit

Introduction

Parenting styles, that is, parents' typical attitudes and behaviors which form the emotional climate in which parents raise their children [1], have been suggested to play an important role in children's social and emotional development [2,3]. For example, affective and warm parenting (i.e., parents' responsiveness, supportiveness, and involvement), as well as behavioral control (e.g., clear rules and limit setting) deployed by parents have been shown to be related to low levels of problem behaviors and depressive symptoms among children [3]. High parental psychological control (i.e., controlling child's behavior and emotions through psychological means, such as guilt induction), in turn, has been found to be associated with increased anxiety, distress, and depressive symptoms among both children and adolescents [2,4,5]. It has been suggested, however, that children with different kinds of temperaments—that is, individuals' innate emotional and behavioral style of experiencing, reacting to, and approaching novel and unexpected stimuli—may profit or loss from different kinds of parenting [6,7]. For example, a low level of parental behavioral control has been found to be associated with aggression among children with high temperamental activity but not among children characterized by low or moderate levels of temperamental activity [8]. Although there is some evidence suggesting that child temperament moderates the effects of parenting styles on children's behavior, such as on adjustment and problem behavior in early [9-13] and late childhood [12,14], less is known about the differential impacts of parenting on children's emotional development [15]. The few prior studies that have examined the combined role of parenting styles and temperament in children's emotional development have focused on children's emotion regulation strategies [9,14] rather than emotion expression. Moreover, the studies have been carried out among preschool-aged children [9] or older school-aged children [14], and less is known about the topic after the critical transition to school.

The transition to primary school can be both challenging and stressful for a child [16-18]. During the first grade, children encounter increasing amounts of successes and failures to deal with, not only in the academic area but also in peer relations [19]. Children are also expected to follow the teacher's directions, and they start to form their self-concept of ability and see others' behaviors and points of view [19]. Research on the transition to school suggests that the success of the transition has an important impact on children's social and emotional competence [20] and their stress and anxiety levels [21], as well as their future academic performance and learning capability [20]. Consequently, the present study investigated the extent to which parenting styles (affection, behavioral control, and psychological control) predict children's emotional development in terms of children's expressions of negative and positive emotions after the critical transition to the first grade of primary school. In addition, it was examined whether these predictions are different depending on each child's type of temperament.

Children's Emotional Development

Children's emotional development has been described as consisting of three different components: (1) *cognitive–experiential*, i.e., individuals' thoughts and awareness of feelings (for example, trying to forget a painful emotion); (2) *behavioral–expressive*, i.e., external emotional signs (for example, smiling or crying); and (3) *physiological–chemical*,

i.e., internal emotional signs (for example, sadness or happiness) [22,23]. In the current study, we focus on the behavioral–expressive component of emotional development—that is, children's positive (e.g., happiness, being proud) and negative (e.g., sadness, distressed) emotions observed by their parents.

The behavioral–expressive component of emotion has been suggested to be a significant factor in child development, interpersonal behavior, and social communication [24], because these external emotional signs provide clues about children's experiences and impact their social interactions [25].

Although both positive and negative emotions are functional in certain situations [26], frequent expressions of negative emotions may have maladaptive consequences. For example, high levels of negative emotions have been related to externalizing problems among children and adolescents [27,28]. Frequent expression of negative emotions may reflect difficulties in emotion regulation, and such difficulties have been related not only to social difficulties and delinquent behavior [29,30] but also to clinical disorders later on in life [23,31,32]. Frequent expressions of positive emotions, in turn, have been shown to be associated with social competence [33,34].

The role of parenting Styles in children's emotional development

Children's early emotional development takes place in the dynamic interaction between the parent–child relationship and the environment that they are developing in [23]. One aspect of this environment is parenting style, where relatively stable parental behaviors and attitudes toward children determine the emotional climate of the family [1]. The dimensional approach to parenting styles has typically focused on the role of three parenting style dimensions in children's development: 1) *affection*, i.e. positive affect, responsiveness, and support in parent–child relationships; 2) *behavioral control*, i.e., the regulation of the child's behavior through firm and consistent discipline (e.g., limit setting, maturity demands, monitoring); and 3) *psychological control*, i.e., parents' control of the child's emotions and behavior through psychological means (e.g., love withdrawal, guilt induction), [3,4,35]. The typological approach to parenting, in turn, has focused on the combinations of the parenting dimensions rather than their unique effects. For example, Baumrind [36] described three different parenting styles: *authoritative parenting*, characterized by a high level of both parental affection and behavioral control; *authoritarian parenting*, characterized by a harsh and punitive control and low affection; and *permissive parenting*, characterized by a high affection but low behavioral control [37].

Research on emotion socialization has revealed that minimizing children's emotional expression or punishing them for expressing negative emotions increases children's intensity of emotional expression, making them more emotionally reactive and less emotionally self-regulating [15,38,39]. Further, authoritative parenting (high parental affection and behavioral control) has been shown to be predictive of more developed emotional functioning, such as empathy-related responding, in children over time [40-42]. Permissive (high affection and low behavioral control) and authoritarian (low affection and high behavioral control) parenting, in turn, have been shown to be related to children's emotional dysfunctioning, reflected, for example, in poor emotion regulation strategies and aggression [15,43].

Moreover, a high level of parental psychological control has been shown to lead to internalizing problems, such as depression, anxiety,

and internalized distress [4]. Consistent with this, Aunola et al. [2] found that both maternal and paternal psychological control was associated with children's high levels of negative emotions. However, this previous study was cross-sectional, and thereby it is not known whether psychological control impacts the development of children's negative and positive emotions over time.

Temperament as a moderator of the relations between parenting styles and children's emotional development

Although there are currently several competing theories and definitions of temperament [44-46], a consensus exists that temperament refers to individuals' innate (biologically based) style of responding behaviorally and emotionally to an environment [47]. Temperament becomes evident in early childhood and is visible, first, in children's emotional arousal and reactivity toward environmental stimuli; secondly, in the expression and form of children's self-regulation in response to aroused emotion; and, third, in children's motivated behavior and associative learning originating from stirred emotions and self-regulation [48-50]. Temperament is relatively stable across different situations and over the course of time [44,45,51-53]. It is seen as raw material that forms an emotional basis for the later development of personality [54,55], which in turn reflects an individual's values, attitudes, and coping strategies learned as a result of socialization within the surrounding environment [56].

According to Rothbart [57], child temperament can be described by three broad factors: *surgency-extraversion* (e.g., approach behavior toward reward, positive anticipating, and sensation seeking), *negative affectivity* (e.g., anger, sadness, and frustration), and *effortful control* (e.g., activation control, attention, and inhibitory control) [58,59]. In turn, Martin and Bridger [60] argued that temperament in early childhood can be organized around two broad behavioral patterns: behavioral inhibition and impulsivity/approach. Children who are rated high on behavioral inhibition have a tendency to physically withdraw or to become emotionally upset when in a social situation that contains persons he or she has not known previously [61]. Impulsive children, in turn, often express negative emotions (particularly negative ones resulting from frustration), are highly active due to lack of ability to modulate physical activity, and lack the ability to sustain attention toward difficult tasks [61]. Martin and Bridger's concepts of behavioral inhibition and impulsivity correspond with Rothbart et al.'s [58] concepts of extraversion/surgency (reversely) and effortful control (reversely), respectively [61]. However, whereas Martin and Bridge included negative emotionality to be a part of impulsivity, Rothbart et al. [58] argued that it is an independent temperamental factor and not part of effortful control.

Aside from specific dimensions or factors of temperament, individual temperament can also be conceptualized as a constellation of the different dimensions [50]. This perspective calls for a person-centered approach to temperament, which considers the ways in which temperament traits are organized and integrated within the individual [62]. In line with this perspective Thomas and Chess [53] identified three patterns of temperament: 1) *easy*, 2) *difficult*, and 3) *behaviorally inhibited*. Each of these temperamental patterns contains dispositional temperamental traits, such as *mood* (i.e., a child's basic mental disposition, varying from being more positive [glad, cheerful, or optimistic] to more negative [grumpy, somber, or pessimistic], *inhibition* (i.e., a child's tendency to be cautious, wary, and shy with new people and in new situations), *activity* (i.e., the frequency and quality [vigor and tempo] of a child's motor responses), and *negative emotionality* (i.e., a child's tendency to easily get upset, feel anger, or be difficult to soothe)

[53,60,63-65]. Children with an *easy* temperament (positive mood but low inhibition, activity, and negative emotionality) are characterized by optimistic humor, good attention span, mild to moderate activity, intensity and sensitivity, positive response to new situations, and adaptivity to change. Children who have a difficult temperament (high negative emotionality, inhibition, and activity but low positive mood), in turn, are characterized as having negative, pessimistic humor and being very active, intensely reactive, overly sensitive, and resistant to change. Finally, behaviorally inhibited children (high inhibition but low negative emotionality and low activity) are less active, less overtly emotional or intense, and tend to withdraw in new situations.

Difficult and behaviorally inhibited temperament profiles have been identified as potential risk factors for children's adaptive development [66-68]. For example, children with difficult temperamental characteristics during early childhood have been shown to be more likely to have difficulties with respect to emotion regulation and self-regulation in their later childhood and adolescence [49,69,70-72]. Behaviorally inhibited children, in turn, have been found to be highly reactive in stressful situations (e.g., in response to a stranger or unfamiliar objects) and to become easily overstimulated [73,74]. Recently, also the terms "*undercontrolled*" (comparable to the *difficult* classification), "*resilient*" (comparable to the *easy* classification), and "*overcontrolled*" (comparable to the *inhibited* classification) have also been used to refer to children's different types of temperament [75-79].

According to the *bioecological model* (Process–Person–Context–Time model; [80]), characteristics of the *Person* (child or other), characteristics of the *Context* (the broader environment), and elements of *Time* (duration and historical setting) all play a role in how proximal processes influence developmental outcomes. Based on this model, caregiving experiences in combination with children's individual characteristics influence future developmental trajectories [80], and thus caregiving experiences may have different impacts on children with different temperaments. The *goodness-of-fit* concept (i.e., the compatibility or dissonance between the growth environment and the child's innate temperament; [53]) suggests that any temperamental characteristic is neither good nor bad but that changes in the social environment may cause changes in the expression of emotional reactions aroused by temperament [51,53,81,82]. Consequently, adaptive outcomes will result when the temperamental characteristics of the child fit with the expectations and demands of the environment. Goodness-of-fit is seen as an interactive approach considering the child, parents, and environment—that is, the child's and parents' as well as environmental circumstances are taken into account [82].

Recently, it has been suggested that depending on the children's temperamental characteristics, some children are more susceptible than others to the effects of their environment and thus to parental socialization. According to the *diathesis–stress model,* some individuals are more vulnerable than others to the adverse effects of exposure to negative experiences [83,84]. The *differential susceptibility model* [83], in turn, suggests that individuals who are the most vulnerable to negative environmental impacts also gain the most from positive experiences and environments. In line with the aforementioned models, a growing body of research has shown that child temperament moderates the associations between parenting styles and children's development [13,85-88]. For example, children characterized by high levels of negative emotionality, activity, or fearfulness (i.e., a component of behavioral inhibition) have been found to be more susceptible to the effects of parental responsiveness and parental control than children who are less negative, active, or fearful in terms of their adjustment

[6]. In middle childhood and adolescence, harsh parenting control has been shown to be associated with poorer adjustment in children with a difficult temperament [8,55,89]. On the other hand, if parental control is not harsh, it has been shown to have positive effects on children's adjustment, particularly among children showing difficult temperamental characteristics [6,90,91].

However, less longitudinal research has focused on the moderating role of children's temperament in the associations between parenting styles and children's emotional development over time. The few studies carried out have focused on children's emotion regulation strategies (i.e., specific strategies individuals deploy when aiming to, either unconsciously or consciously, regulate the magnitude and/or type of their emotional experience; [92]) rather than emotion expression. For example, in the study by Jaffe and colleagues [14] on children in grades 4 to 6, easy temperament (defined as positive mood, approach behavior, and flexibility) combined with high perceived parental care (affection and emotional warmth) was associated with children's greater use of reappraisal in their emotion regulation strategy. In turn, more difficult temperament (defined as negative mood, withdrawal behavior, and rigidity) combined with low perceived parental care was associated with greater use of suppression in the children's emotion regulation strategy [14]. Similarly, Gilliom and colleagues [9] found that for preschool boys who were exposed to harsh and hostile maternal behaviors, negative emotionality (at age 18 months) predicted less adaptive and more maladaptive emotion regulation (at age 3½).

The other limitation of earlier research is that the studies examining the combined role of parenting styles and child temperament in children's emotional development have focused either on preschool-aged children or older school-aged children, and less is known about this development after the critical transition to school. The transition to primary school can be assumed to be an important phase in a child's emotional development since children face various new social and academic challenges during this stage [19]. Success (or failure) in this critical transition has also shown to have an important impact on children's subsequent future social and emotional competence, academic performance, and learning capability [20].

The Current Study

In the present study, the focus is on children's expression of negative and positive emotions and changes in this during the transition to primary school. Particularly, the joint effects of children's temperament and mothers' and fathers' parenting styles in this emotional development are under focus. Because the earlier literature on children's emotions has mainly focused on children's negative emotions [15,38,69,93] and anxiety [94,95], the present study examined both negative and positive emotions. Positive emotions in children have been shown to be associated with higher social interactions and social competence [33,34,96]. Positive emotions are important, not just as moments of flourishing, but also as a means to achieve higher well-being and psychological growth over time [97].

Based on the diatheses–stress and differential susceptibility models [83], we hypothesized that difficult temperament (i.e., high negative emotionality, inhibition, and activity) on the one hand (Hypothesis 1), and psychological control on the other hand (Hypothesis 2; [4,98] predict increased negative emotion in children during the first grade. Parental affection and behavioral control, in turn, were expected to have positive effects on children's emotions, manifested as increased levels of positive emotion and decreased levels of negative emotion (Hypothesis 3; [4,3]. Based on the diatheses–stress and differential susceptibility

models [83], as well as the goodness-of-fit model [53], we further expected that children with a difficult temperament would suffer from a lack of parental behavioral control more so than others, manifested as an increase in negative emotions(Hypothesis 4) . Moreover, we expected that inhibited children benefit more from parental affection than those with an easy temperament (Hypothesis 5; [99]).

Method

Participants and procedure

The sample consisted of 152 first grade children (79 girls, 73 boys; Age $M = 7.5$ years, $SD = 3.61$ months) and their mothers ($N = 152$) and fathers ($N = 118$). Of the participating mothers, 151 were biological mothers, and of the participating fathers, 110 were biological fathers. The sampling was begun by contacting 334 first grade teachers and asking them to participate in the study. One hundred sixty-six teachers agreed and signed a written consent form. Next, one student was randomly selected from each class, and the parents of the student were asked to give their consent for their child's participation. If the parents did not respond or withheld their consent, then another child was selected from the class, again at random, and his or her parents were contacted. This procedure continued until one student was obtained from each class. From this total of 166 children and their parents, 14 families were omitted from the analyses because the children were in special education classes. Thus, the final sample comprised 152 children in normal classes and their mothers (n = 152) and fathers (n = 118). The schools participating in the study were situated in three medium-sized towns in Finland.

The families were fairly representative of the general Finnish population [100]. A total of 52% of the mothers and 31% of the fathers had completed at least a senior high school education, 47% of the mothers and 66% of the fathers had completed at least a junior high school education (comprehensive school; up to the completion of Grade 9 at age 16), and 1% of the mothers and 3% of the fathers had not completed a junior high school education. Seventy-eight percent of the families were nuclear families (67% married, 11% cohabiting parents), 12% were blended families, and 10% were single-parent families. The number of children per family ranged from 1 to 10 ($M = 2.39$, $SD = 1.03$).

The mothers and fathers of the children were asked to respond to a mailed questionnaire concerning their parenting styles and their children's temperament in the fall (October or November) of the children's first grade (Time 1). At the same time point (Time 1), both parents were asked to fill in a structured diary questionnaire concerning their child's negative and positive emotions over seven successive days (diary). The diaries were filled in separately by the mothers and fathers on seven consecutive days, always just before going to sleep. The parents were again asked to fill in the same diaries regarding their children's emotions during the spring of the children's first grade (April; Time 2). Each parent was paid 50 EUR (about 62 USD) for participating in the study.

Measures

Children's daily emotions: Children's emotions were assessed according to the Daily Emotion Scale (DES; [101]), which is based on the Positive and Negative Affect Scale (PANAS; [102]). Each day across one week (seven days), the parents completed a structured questionnaire measuring their child's *daily emotions* (11 items; e.g., "My child was angry today"; "My child was sad today"; "My child felt distressed today"). Parents rated each item on a 5-point Likert scale

(1 = *not at all*; 5 = *very much*). To create indices regarding children's daily emotions, principal axis factor analyses with oblimin rotation were first carried out separately for mothers' and fathers' ratings. Two factors with eigenvalues over 1 were yielded in regard to both mothers and fathers: The eight *negative emotion* items loaded on one factor, and the three *positive emotion* items loaded on the other. The mean scores for children's negative daily emotions and positive daily emotions were then calculated across seven days based on both mothers' and fathers' ratings. The Cronbach's alpha reliabilities for children's negative emotions were .86 at Time 1 and .87 at Time 2, and for children's positive emotions they were 0.83 at Time 1 and 0.87 at Time 2. More validity and reliability information for the scale can be found, for example, from the studies by Aunola et al. [2,93].

Children's temperament: Mothers and fathers evaluated their children's temperament according to a temperament scale [103] created on the basis of the Temperament Assessment Battery for Children—Revised (TABC-R; [60]) and the Revised Dimensions of Temperament Survey—Revised (DOTS-R; [65]). The scale consisted of altogether 41 items, each rated on a 5-point Likert scale (1 = *not at all true*; 5 = *very true*). In the present study, subscales were used for the three temperamental characteristics for which mothers' and fathers' evaluations were consistent (i.e., which significantly correlated statistically): *negative emotionality* (7 items; e.g., "When taken away from an enjoyable activity, my child tends to protest strongly"; "When my child becomes angry, it is difficult to sidetrack him/her"), *activity* (4 items; e.g., "When sitting, my child swings his/her legs, fidgets, or has his/her hands in constant motion"; "My child can sit quietly through a family meal" (revised)), and *inhibition* (8 items; e.g., "My child is shy with unfamiliar adults"; "In a new situation or with new people, my child is still uncomfortable even after a few days"). Mean scores for these three temperament subscales were created calculating the mean of mothers' and fathers' evaluations. The Cronbach's alpha reliabilities for the subscales were, respectively, .84, .75, and .92 for mothers and 0.79, 0.73, and 0.91 for fathers.

Parenting styles: Mothers' and fathers' parenting styles were measured with a Finnish version [104] of the Block's Child Rearing Practices Report (CRPR; [105]). The mothers and fathers were asked to rate 18 items on a 5-point scale (1 = *not like me at all*; 5 = *very much like me*). These items were intended to measure different aspects of parenting styles: *affection* (9 items; e.g., "I often tell my child that I appreciate what he/she tries out or achieves"; "I often show my child that I love him/her"), *psychological control* (4 items; e.g., "I let my child see how disappointed and ashamed I feel when he/she misbehaves"; "My child should be aware of how much I sacrifice for him/her"), and *behavioral control* (5 items; e.g., "My child should learn that we have rules in our family"; "My child should learn how to behave properly toward his/her parents"). The respective Cronbach's alpha reliabilities regarding these dimensions were, respectively, 0.77, 0.81, and 0.66 for mothers and 0.80, 0.79, and 0.61 for fathers.

Analysis strategy

The analyses were carried out along the following steps. First, a two-step clustering analysis was carried out in order to identify homogeneous groups of children according to their temperamental characteristics. In this, each criterion variable (i.e., inhibition, negative emotionality, and activity) was first standardized to make sure that the differences in standard deviations did not affect any distances in forming the clusters. Then, outliers that exceeded the standardized scores by –2.5 or +2.5 were identified and then forced within range by moving outliers to the end of the distribution. Finally, a two-step

clustering analysis was carried out. The two-step cluster analysis procedure is an exploratory tool designed to reveal natural clusters within a data set that would otherwise not be apparent. There are two steps: The first is the creation of a cluster tree, in which the first case is located at a node at the base of the tree, and each successive case is added to an existing node or forms a new node, based on its similarity to the existing nodes according to the distance criterion. Thus, the cluster tree provides a capsule summary of the data file. The second step is the grouping of the nodes using an agglomerative algorithm [106]. The number of clusters was determined on the basis of three criteria: 1) BIC value (Bayesian information criterion; smallest BIC value indicates the best cluster solution); 2) theoretical interpretation of the clusters; and 3) the number of cases in each cluster.

Next, covariance analyses (ANCOVAs) were carried out to examine whether parenting styles (i.e., affection, behavioral control, psychological control), children's type of temperament (cluster membership), and the interactions between parenting style variables and types of temperament would predict children's negative and positive emotions at Time 2 after controlling for the level of the same emotion at Time 1. Separate analyses were carried out for negative and positive emotions and for mothers and fathers. In all of the analyses, the parents' level of vocational education was controlled for. This was done because, in the earlier literature, parental socioeconomic status has been shown to be related to parenting styles [107] as well as children's development [108].

Third, if statistically significant interaction terms Parenting X Type of Temperament were found in previous ANCOVA analyses, hierarchical regression analyses were carried out as follow-up analyses to find out how parenting style variables predict emotion development among children with different types of temperaments. All analyses were conducted with SPSS software version 19. The zero-order correlations between the study variables are presented in Table 1.

Results

Temperament groups

This clustering-by-cases procedure identified three clusters showing different patterns of temperamental characteristics: children with a *difficult* temperament (22.67%, $n = 34$), *easy* temperament (42%, $n = 63$), and *inhibited* temperament (35.33%, $n = 53$). Children with a difficult temperament were characterized by high levels of activity, inhibition, and negative emotionality, while children with an easy temperament were characterized by low levels of activity, inhibition, and negative emotionality. Children with an inhibited temperament showed low levels of activity and negative emotionality but a high level of inhibition. The means and standard deviations (z-scores) for the temperament variables in the different groups, as well as the results of the one-way analyses of variance (ANOVAs) for the criterion variables, are reported in Table 2. Children within the difficult temperament group showed statistically significantly higher levels of activity and negative emotionality than the children in the other two groups. Children with a difficult temperament also showed a higher level of inhibition than the children in the easy temperament group. Children in the easy temperament group, in turn, showed a lower level of inhibition than the children in the other groups and lower levels of activity and negative emotionality than the children in the difficult temperament group. In turn, children in the inhibited temperament group showed a higher level of inhibition than the children in the easy temperament group, but they did not differ from the easy temperament group in their levels of activity and negative emotionality.

Cross-tabulation indicated no significant association between cluster membership and child gender.

The role of parenting styles and a child's temperament type in the child's negative emotions

Mothers: Next, we examined the extent to which mothers' parenting styles, children's type of temperament, and the interaction of

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	.13
Negative emotion T1	1.00												
Positive emotion T1	-0.15	1.00											
Negative emotion T2	0.67**	-0.07	1.00										
Positive emotion T2	-0.14	0.63**	-0.15	1.00									
Inhibition	0.17*	-0.13	0.23**	-0.10	1.00								
Activity	0.38**	-0.21*	0.32**	-0.19*	0.13	1.00							
Negative emotionality	0.51**	-0.26**	0.39**	-0.16	0.16	0.56**	1.00						
Affection (mother)	-0.39**	0.31	-0.29**	0.20*	-0.22*	-0.36**	-0.37**	1.00					
Behavioral control (mother)	0.19*	-0.05	0.05	0.01	-0.01	0.11	0.19*	-0.11	1.00				
Psychological control (mother)	0.18	0.09	0.05	0.07	0.09	0.15	0.07	-0.08	0.28**	1.00			
Affection (father)	-0.21*	0.15	-0.15	0.07	-0.19*	-0.31**	-0.28**	0.22*	-0.16	-0.14	1.00		
Behavioral control (father)	0.27**	0.04	0.12	0.10	0.06	0.15	0.30**	-0.11	0.37**	0.18	-0.05	1.00	
Psychological control (father)	0.28**	0.05	0.29**	0.06	0.06	0.24**	0.34**	-0.15	0.12	0.16	-0.18*	0.42**	1.00

Note. * p < 0.05, ** p < 0.01, *** p < 0.001; T_1= Time 1, Autumn; T_2= Time 2, Spring

Table 1: Correlations of Study Variables.

	Children's temperament group								
	Difficult (n=34)		Easy (n=63)		Inhibited (n=53)				
Temperament trait	M	SD	M	SD	M	SD	F	df	ηp²
Activity	1.07	0.93	-0.34	0.71	-0.27	0.86	37.13[a]	2, 147	0.34
Negative emotionality	1.37	0.74	-0.34	0.63	-0.46	0.69	78.45[a]	2, 147	0.55
Inhibition	0.42	0.95	-0.83	0.54	0.72	0.69	89.50[a]	2, 147	0.52

Note: [a]$p<0.001$; ηp² =Partial eta squared values are suggestive of significant effect size. Cohen (1969) classified effect of 0.2 as *small,* 0.5 as *medium*, and .8 or higher as *large*.

Table 2: Mean (M) and standard deviations (SD) (z-scores) for children's temperament variables for the three temperament groups.

mothers' parenting styles and children's temperament predict children's negative emotions. For this purpose, we conducted a univariate analysis of covariance (ANCOVA). The results are shown in Table 3.

The results (Table 3) revealed, first, that after controlling for the effect of negative emotions at Time 1 and the maternal level of vocational education, the main effect of the temperament type (group) was statistically significant. Post hoc Bonferroni tests further revealed that there were significant differences between the children in the difficult and the easy group in regard to negative emotions at Time 2 ($p < 0.01$). Children with a difficult temperament showed higher levels of negative emotion ($M = 1.54$, $SD = 0.28$) than did the children with an easy temperament ($M = 1.33$, $SD = 0.24$). In regard to negative emotions, no significant differences were found between the children in the easy and inhibited groups nor between the children in the difficult and inhibited groups. Moreover, mothers' psychological control had a statistically significant main effect on children's emotional development: The higher the level of mothers' psychological control, the more negative emotions children showed at the end of the first grade, after controlling for the children's previous level of negative emotions. In turn, the main effects of mothers' affection and behavioral control were not significant.

The results showed further, however, that the interaction terms *mother's affection x child's type of temperament* as well as *mother's behavioral control x child's type of temperament* were also significant. This suggests that the impacts of mothers' affection and behavioral control depend on their children's type of temperament.

Consequently, follow-up analyses were carried out separately for each temperament group. In these analyses, children's negative emotions at Time 2 were predicted by mothers' parenting style variables, after controlling for the child's negative emotions at Time 1 and the maternal level of vocational education. The results showed, first, that mothers' affection predicted negative emotions at Time 2 only for children with an inhibited temperament (standardized $\beta = -0.36$, $p < 0.01$): The higher the level of maternal affection, the lower the level of subsequent negative emotions among children with an inhibited temperament. Among children with an easy (standardized $\beta = 0.13$) or difficult (standardized $\beta = 0.10$) temperament, maternal affection had no impact on negative emotions at Time 2. Second, the results revealed that mothers' behavioral control (standardized $\beta = -0.37$, $p < 0.01$) predicted negative emotions at Time 2 in the difficult temperament group but not regarding children with an easy (standardized $\beta = 0.09$) or inhibited (standardized $\beta = -0.10$) temperament. That is, the lower the levels of mothers' behavioral control, the higher the level of subsequent negative emotions among children with a difficult temperament.

Fathers: Next, a similar ANCOVA as described above was carried out for fathers. The results are shown in Table 4. The results showed that, after controlling for negative emotions at Time 1 and fathers' level of vocational education, none of the main effects of children's type of temperament, fathers' affection, or behavioral and psychological control were statistically significant. However, the results further showed that the interaction term *father's psychological control x child's type of temperament* was significant, suggesting that

		Negative Emotions (T_2)		
	F	p	df	ηp^2
Control variables				
Child's negative Emotions (T_1)	89.41	0.00	1, 120	0.46
Mothers' vocational education	3.32	0.07	1, 120	0.05
Variables of main interest				
Type of a child's temperament	4.84	0.01	2, 120	0.12
Mothers' affection	0.58	0.45	1, 120	0.01
Mothers' behavioral control	3.21	0.08	1, 120	0.04
Mothers' psychological control	4.76	0.03	1, 120	0.05
Mothers' affection X temperament type	6.35	0.00	2, 120	0.10
Mothers' behavioral control X temperament type	3.79	0.02	2, 120	0.09

Note: T_1=Time 1, Autumn; T_2=Time 2, Spring
Table 3: Main and interaction effects (ANCOVA) of Mothers' (n=152) parenting styles and child temperament type predicting children's negative emotions at time 2 (controlled for the negative emotion at time 1 and for parental vocational education).

		Negative Emotions (T_2)		
	F	p	df	ηp^2
Control variables				
Child's negative Emotions (T_1)	76.47	0.00	1, 86	0.46
Fathers' vocational education	2.18	0.14	1, 86	0.02
Variables of main interest				
Type of a child's temperament	0.83	0.44	2, 86	0.06
Fathers' affection	0.18	0.67	1, 86	0.00
Fathers' behavioral control	0.07	0.79	1, 86	0.00
Fathers' psychological control	0.26	0.61	1, 86	0.00
Fathers' psychological control X temperament type	3.87	0.02	2, 86	0.08

Note: T_1=Time 1, Autumn; T_2=Time 2, Spring
Table 4: Main and interaction effects (ANCOVA) of fathers' (n=118) parenting styles and child temperament type predicting children's negative emotions at time 2 (controlled for the negative emotion at time 1 and for parental vocational education).

the impact of the father's psychological control depends on the child's type of temperament.

Consequently, once again, follow-up hierarchical regression analyses were carried out separately for each temperament group. In these analyses, children's negative emotions at Time 2 were predicted by fathers' parenting style variables, after controlling for the child's negative emotions at Time 1 and the father's level of vocational education. The results showed that among children with a difficult temperament, fathers' psychological control (standardized $\beta = 0.34$, $p < 0.05$) predicted negative emotions at Time 2. That is, the higher the paternal level of psychological control, the higher the level of subsequent negative emotions among children with a difficult temperament. Among children with an easy (standardized $\beta = -0.15$) or inhibited (standardized $\beta = -0.10$) temperament, fathers' psychological control had no impact on negative emotions at Time 2.

The role of parenting styles and a child's temperament type in the child's positive emotions

Mothers: Next, an ANCOVA was carried out regarding mothers' parenting styles, children's temperament type, and children's positive emotions. None of the main effects or interaction terms were statistically significant.

Fathers: Finally, an ANCOVA was carried out regarding fathers' parenting styles, children's temperament type, and children's positive emotions. The results revealed that none of the main effects or interaction terms were statistically significant.

Discussion

The present study aimed to investigate the joint effects of children's temperament and their parents' parenting styles on children's emotional development in terms of expression of negative and positive emotions at the beginning of primary school (after controlling for the parental level of vocational education). The results showed that mothers' and fathers' parenting styles played a different role depending on each child's type of temperament. Mothers' low level of behavioral control and fathers' high level of psychological control at the beginning of the first grade predicted children's subsequent high level of negative emotions at the end of the first grade, but only among children with a difficult temperament. Mothers' high level of affection, in turn, predicted less negative emotions in children with an inhibited temperament. The impact of mothers' psychological control on their child's negative emotions was not dependent on the child's temperament but was evident at the level of the whole sample. No associations were found between parenting styles, children's temperament, and children's positive emotions.

In the present study, three different types of temperament were identified among first grade children: difficult, easy, and inhibited temperaments. These identified types were consistent with the classical Thomas and Chess [53] classification of temperament. Children in the difficult temperament group were characterized by high levels of activity, inhibition, and negative emotionality, while children in the easy temperament group were characterized by low levels of all these characteristics. Children in the inhibited temperament group showed low levels of activity and negative emotionality but high inhibition. The identified types of temperament are also in line with the more recent classifications of "undercontrolled" (comparable to the difficult temperament group), "resilient" (comparable to the *easy* group), and "overcontrolled" (comparable to the *inhibited* group) children [49,76,77].

In the earlier literature, children with a difficult or "undercontrolled" temperament have been characterized by negative emotionality and negative mood [79], and they have also been shown to have difficulties in regulating their negative emotions [14]. The results of the present study are in line with these earlier findings and our Hypothesis 1, as the children with a difficult temperament were reported by their parents as expressing more negative emotions at the end of the first grade than was the case for children with an easy temperament. The results of the present study add to the previous literature by showing that children with a difficult temperament not only expressed more negative emotions than children with an easy temperament, but they also manifested more increases in these emotions during the first grade than did the children with an easy temperament. One explanation for this result may be that it is more difficult for children with a difficult temperament to adapt to all the changes related to the transition to primary school compared to their peers with a more easy temperament. This may, in turn, be reflected in their expression of negative emotions. When interpreting this result it should be noted, however, that although in the present study the difference between children with difficult and easy temperaments in terms of negative emotions was statistically significant, the effect size was only marginal.

The major aim of the present study was to examine whether children with different kinds of temperaments would benefit from different kinds of parenting. According to the goodness-of-fit model of temperament [53], a poor fit of children's characteristics with their environment leads to poor child developmental outcomes, whereas a good fit leads to optimal developmental outcomes. In line with this kind of argumentation, the results of the present study showed that the role of mothers' and fathers' parenting styles in their children's emotional development was mostly found to differ depending on each child's type of temperament. First, although the negative emotions of children with a difficult temperament tended to increase during the first grade compared to children with an easy temperament, mothers' high level of behavioral control protected against this increase: The higher the level of maternal behavioral control, the lower the level of subsequent negative emotions among children with a difficult temperament. Among easy and inhibited children, maternal behavioral control had no impact. This pattern of results is in line with our Hypothesis 3 and with previous evidence showing that high parental control (i.e., regulation of the child's behavior through firm and consistent discipline that is not, however, harsh) predicts less negative behaviors and greater adjustment among children with a difficult temperament [6,90,91,99]. The goodness-of-fit model [53] also stresses that the developmental outcomes can differ depending on the parenting strategies that parents adopt toward their child. Our findings, as well as those of some earlier studies [90,91], suggest that children with a difficult temperament may benefit from clear limits on their behavior—more so than others when it comes to needing to adjust to their school environment.

Furthermore, the results of the present study showed that although the psychological control deployed by mothers predicted increased levels of negative emotions among all children during the first grade, fathers' psychological control was detrimental in particular for children with a difficult temperament. These results are in line with our Hypothesis 2 and with previous evidence showing that high parental psychological control is related to various negative outcomes among children, such as low self-esteem, signs of anxiety, distress, depression, shame, and guilt [4,109,110]. Additionally, these results are in line with recent findings by Aunola and colleagues [2,93] suggesting that a high level of maternal and paternal psychological control is associated with higher levels of negative emotion in children. The present study

provides a supplemental contribution to the previous literature by suggesting that the negative effects of fathers' psychological control may be particularly evident among children with a difficult temperament [8,9,14,89]. Overall, the present findings are in line with the diatheses–stress model and our Hypothesis 4, suggesting that children with a difficult temperament are even more susceptible to parental negative impacts than those with an easy temperament.

Unlike behavioral control (i.e., regulation of the child's behavior through firm and consistent discipline), psychological control is an effort to maintain power over a child and is indicative of a negative parent–child relationship [109]. It has been suggested that high parental psychological control can result in negative emotions among children by promoting negative self-schemas [111], transfusing children's sense of dependency [95], and decreasing their sense of control [94], which in turn can lead to heightened distress in the children [93]. The reason why psychological control deployed by fathers led to an increase in negative emotions particularly among children with a difficult temperament may be due to the fact that these children are biologically more prone to negative emotions and intense emotional reactions overall than other children [66].

The results showed further that children with an inhibited temperament, in particular, benefitted from maternal affection: The higher the level of maternal affection, the less negative emotions these children showed later on. Among other children, these kinds of beneficial effects of maternal affect were not found. This result was partially in line with our Hypothesis 5 (i.e., inhibited children benefit more from parental affection than those with an easy temperament) and can be interpreted in terms of the goodness-of-fit model [53]: In order to reach a goodness-of-fit, children with an inhibited temperament may need high parental affection, and, because of this, they may benefit more from maternal affection than children with other types of temperament. This result is also in line with our previous study [112], where we found that particularly those children who showed signs of social withdrawal were vulnerable to the negative effects of low maternal affection. After infancy, temperamental inhibition is often manifested as withdrawal behavior [113]. Overall, the result of the present study suggests that inhibited children benefit from parental affection. This result is somewhat inconsistent with some earlier findings which suggest that high levels of affection can be problematic for inhibited children under certain conditions [68].

One possible mechanism underlying these results is that children with an inhibited temperament may be more likely to benefit from parental encouragement to explore novel situations [99]. When parents are less warm and more overprotective, children with an inhibited temperament are more likely to remain inhibited and shy [99]. As inhibited children are often rejected by their peers [114], maternal warmth and support can function as an important source of emotional support for them [112] and can have a significant effect on their emotional development. Furthermore, since a positive and warm parent–child relationship is characterized by better parent–child communication and associated with greater usage of problem-focused coping styles and social support [115,116], higher maternal affection can be seen as providing greater emotional support for children with an inhibited temperament, helping them to overcome their fears in new situations and leading to a reduction in their level of negative emotions.

Overall, the results showed no effects of parenting styles on temperamentally easy-going children, except the negative effect of maternal psychological control found at the level of the whole sample. These results are in line with the differential susceptibility framework

in suggesting that children with a difficult or inhibited temperament are more prone to environmental impacts—or parental socialization at least—than other children. According to this model, children with a difficult temperament who are exposed to beneficial parenting may, overall, have better developmental outcomes than other children, but they could also experience poorer outcomes in less advantageous environments [10]. Our finding is also consistent with the findings by Bradley and Corwyn [11] and Stright et al. [13], whose results showed that children with a difficult temperament display more problem behaviors and less adjustment in the first grade when receiving low-quality parenting but fewer problems and better adjustment when receiving high-quality parenting. Among children with a very low level of difficult temperament (easy temperament), the quality of parenting had less or no impact on the children's outcomes [11,13]. Similarly, Kochanska and Kimm [10] found that regarding children with a difficult temperament, maternal responsiveness had a significant impact on such children's developmental outcomes in early childhood (more compliant and less externalizing problems), while for children with a more easy-going temperament, maternal responsiveness and developmental outcomes were found to be unrelated. One possible explanation for this is that although children with a difficult temperament are more challenging to regulate by their parents, they may also be more responsive to parental efforts to socialize them [13]. Consequently, parenting on the whole may have a stronger impact on these children's development than in the case of children with other types of temperaments [13].

The results further showed that parenting styles and children's temperament, as well as the interaction of parenting styles with children's temperament, all had no impact on children's positive emotions during the first grade. This result is inconsistent with findings suggesting that parenting that is more supportive, warm, and responsive, where discipline is based on clear reasoning, and that demands more mature behavior is more likely to promote children's positive social and emotional development [117]. One explanation for our finding is that parents of a child with more negative emotions may experience difficulty when trying to tolerate their child's emotions and are more likely to intrude in the child's activity and to assist the child in emotionally negative situations; on the other hand, in situations where the child shows positive emotions, this kind of behavior is not present [118].

Our results further revealed that mothers and fathers play a different role in regard to children's negative emotions. According to our findings, paternal affection and behavioral control had no impact on the development of children's negative emotions during the first grade, and, moreover, paternal psychological control played a role only among children with a difficult temperament; meanwhile, maternal psychological control had negative effects on children of all types of temperament. These findings are consistent with the results of related research by Hastings et al. [85], Russell et al. [87] and Zarra-Nezhad and colleagues [112], none of whom found any joint effects of fathers' parenting and children's sociability or inhibition on children's socioemotional development. Hudson et al. [118] also found that paternal behavior is not related to the emotion a child experiences. Our results may be due to the fact that the mother is usually the primary caretaker of the child, and for this reason her parenting may naturally play a more important role in her child's emotional development than does the father's parenting. Another explanation is that, because interactions between the mother and her child are typically characterized by more responsiveness, warmth, and intimate exchanges than interactions between the father and his child [119], children tend to be more open to maternal than paternal influence [1,35].

Limitations

The present study involved some limitations that should be taken into account in any generalization of the findings. First, the sample size was small, and our findings should therefore not be generalized with respect to a broader community based on this study alone. The small sample size also limits the power of our statistical tests. Second, the observed effect sizes were relatively small. Although small effect size suggests that there is a real effect, a larger sample size is needed in order to detect the group differences [120]. Third, the children's emotions were measured at two follow-up points within one year. In order to get a bigger picture of the phenomena, longer-term follow-ups are needed. Fourth, all the measures were based only on parental reports. The parents described their children's temperament, their own parenting style, and their children's emotions; this raises the possibility of bias in the reports. That is, some descriptions of the children's emotions may reflect the personal characteristics of the parents and their expectations of their children [121]. The fact that all the measures were based on self-reports also means that the data are subject to common-method variance. Thereby, because it is possible that some of the results are due to the shared method variance, there is evident need to replicate the reported results using different informants when measuring the constructs under interest. Fifth, children's emotions were measured using parent-ratings only, and their own experiences of emotions were not assessed. Consequently, although parent-ratings provide information about children's emotion expression, this emotional expression should be distinguished from emotional experience in a way that it is possible to experience emotions without expressing them (e.g., concealing one's anger), as well as expressing emotions without experiencing them (e.g., conveying genuine affection) [122]. Sixth, parenting styles were measured only once. Thus, it was not possible to examine the bidirectional relationship between parenting styles and children's emotional development. In the previous literature, child behavior and parenting have been shown to show a bi-directional relationship over time [123,124]. It may well be possible, for example, that children's expressions of emotion and their type of temperament influence their parents' style of parenting.

Conclusion

Overall, the results of the present study suggest that mothers' and fathers' parenting styles play a role in their children's negative emotions and related development, particularly among temperamentally inhibited or difficult children. Children with an inhibited temperament, in particular, were found to benefit from high levels of maternal affection, whereas children with a difficult temperament seemed to benefit from maternal behavioral control but suffered from paternal psychological control.

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III

**CHILDREN'S SHYNESS MODERATES THE
ASSOCIATIONS BETWEEN PARENTING BEHAVIOR AND
THE DEVELOPMENT OF CHILDREN'S PRO-SOCIAL
BEHAVIOR**

by

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