



Universiteit Utrecht

## **Susceptibility of Children to Parenting Behaviors**

Prediction of child problem behaviors in kindergarten: The moderating role of child's anger in the effects of maternal ignoring of misbehavior and maternal overprotection on child problem behavior.



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THESIS

Prediction of Child Problem Behaviors in Kindergarten: The Moderating Role of Child's  
Anger in the Effects of Maternal Ignoring of Misbehavior and Maternal Overprotection on  
Child Problem Behavior.

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Four years ago I started my student time in Enschede, and now the end is nearly there. A year ago I started at the University of Utrecht with the master Child and Adolescent Psychology. Four years of studying brought me one bachelor (Psychology) and one master (Child and Adolescent Psychology), and a lot of experience in the field. Now it is time to start a new chapter in my life which will begin in Deventer. I will certainly try to bring all my experience from the last four years in practice and try to develop myself. I am really looking forward to my next step.

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Enjoy reading the paper!

Lisa Buurkes

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**Abstract**

The additive and interactive relations of parenting (maternal ignoring of misbehavior and maternal overprotection) and child temperament (anger) to children's internalizing and externalizing problem behavior were examined in an 11-months longitudinal study of 179 children (3–7 years of which 51 percent girls, 45 percent boys, and 4 percent missing data) from Utrecht, Netherlands. At the screening, demographic variables were measured and mothers rated child temperament. At wave 1 and 2, mothers self-reported on parenting behaviors and mothers also rated children's internalizing and externalizing problems. Two hierarchical multiple regression analyses were conducted for the dependent variables at T2 by using the variables at T1 as predictors. The main effect of both maternal ignoring of misbehavior and maternal overprotection did not predict internalizing and externalizing child problem behavior. Only the main effect of children's anger prospectively and uniquely predicted internalizing problem behavior. The longitudinal relationship between the parenting behaviors maternal ignoring of misbehavior and maternal overprotection, and child problem behavior was not moderated by children's anger. The above results suggest that: a) children with high levels of anger were not more affected by maternal ignoring of misbehavior and maternal overprotection than children with lower levels of anger and b) children with high levels of anger showed more internalizing problem behavior later in development.

*Keywords:* ignoring, overprotection, child's anger, child problem behaviors

### **Samenvatting**

In deze longitudinale studie van 11 maanden is onder 179 kinderen (3 – 7 jaar waarvan 51 procent meisjes, 45 procent jongens en 4 procent missende data) uit de omgeving van Utrecht onderzocht of boosheid van kinderen de relatie tussen oudergedrag (negeren van wangedrag door moeders, overbescherming door moeders) en probleemgedrag (internaliserend probleemgedrag en externaliserend probleemgedrag) modereert. Bij de screening is er gevraagd naar demografische variabelen en ook hebben moeders het temperament van hun kind beoordeeld. Op wave 1 en 2 hebben moeders zowel hun eigen opvoedgedrag als ook het internaliserende en externaliserende probleemgedrag van hun kind beoordeeld. Er zijn twee hiërarchische regressie analyses uitgevoerd voor het meten van de afhankelijke variabelen op tijdstip 2 door de variabelen op tijdstip 1 als voorspellers te gebruiken. Uit het onderzoek komt naar voren dat de hoofdeffecten van negeren van wangedrag en overbescherming door moeders geen probleemgedrag voorspellen. Enkel het hoofdeffect van de mate van boosheid van kinderen voorspelt internaliserend probleemgedrag. De longitudinale relatie tussen de opvoedgedragingen negeren van wangedrag en overbescherming en het probleemgedrag van kinderen wordt niet gemodereerd door de mate van boosheid van kinderen. De bovenstaande resultaten suggereren dat: a) kinderen met een hoge mate van boosheid lijken niet vatbaarder voor negeren van wangedrag en overbescherming van moeders dan kinderen met een lagere mate van boosheid en b) kinderen met een hoge mate van boosheid lieten later in de ontwikkeling meer internaliserende problematiek zien dan kinderen met een lagere mate van boosheid.

*Kernwoorden:* negeren, overbescherming, boosheid van kinderen, probleemgedrag

Prediction of Child Problem Behaviors in Kindergarten: The Moderating Role of Child's Anger in the Effects of Maternal Ignoring of Misbehavior and Maternal Overprotection on Child Problem Behavior

A young boy lives with his older brother and his parents in a small village. The parents are most of the time harsh and not supportive towards their children. The youngest boy always had more temper tantrums than his brother. The boy is now twelve years old and his parents are struggling with his aggressive behavior. His brother shows less problem behavior. Would the young boy not have been aggressive if the parenting behavior was more warm and supportive towards the child? And why do these brothers respond so different to their environment?

Based on their temperament some children are considered more vulnerable than others to environmental influences. There are three important hypotheses of differences in susceptibility of children: the diathesis-stress model, the vantage sensitivity hypothesis and the differential susceptibility hypothesis. Central to the diathesis-stress model is the view that some children, due to a vulnerability in their make-up, are more likely to be affected adversely by an environmental stressor (Zuckerman, 1999). The recently introduced vantage sensitivity hypothesis reflects the general proclivity of an individual to benefit from positive and presumptively well-being- and competence-promoting features of the environment (Pluess & Belsky, 2013). The differential susceptibility hypothesis claims that individuals should vary in their developmental susceptibility to environmental influence, both for better and for worse (Belsky, 1997a, 1997b, 2005). The model predicts that some children are more susceptible than others to both the negative and positive effects of, respectively, unsupportive and supportive contextual conditions (Belsky & Pluess, 2009). Central in this study is the diathesis-stress model. This study is designed to examine the interactions between child temperament and parenting in the prediction of child problem behaviors. Child temperament

has been defined as constitutionally based individual differences in reactivity and self-regulation, influenced over time by heredity and experience (Rothbart & Derryberry, 1981). Dispositional anger refers to the child's tendency to experience negative affect related to the interruption of ongoing tasks or goal blocking (Rothbart, Ahadi, Hershey, & Fisher, 2001). In other words, children with high levels of anger react strongly and aversively to obstacles that prevent them from doing what they want (Veenstra, Lindenberg, Oldehinkel, de Winter, & Ormel, 2006). Externalizing problem behavior refers to behavioral problems, such as conduct disorders, aggressiveness, and antisocial behavior, or attention deficit and hyperactivity (American Psychiatric Association, 1994; Roeser, Eccles, & Strobel, 1998). In contrast, internalizing problem behavior refers to emotional problems, like depression and anxiety. In internalizing problem behavior negative emotions are directed at oneself rather than others (Roeser et al., 1998).

### **Parenting and child problem behaviors**

In theory, temperament does not lead to behavioral problems by itself; it only has an effect in conjunction with particular environments (Bates, Pettit, Dodge, & Ridge, 1998). The main assumption of previous research is that parental childrearing practices play a major role in the development and occurrence of child psychological problems (Harris, 2002; Kagan, 2003; Maccoby, 2002; Rutter, 2002). In fact, parenting seems to have an important influence on child internalizing and externalizing behavior (Grusec, 2011; Hart, Newell, & Olsen, 2003; van Leeuwen, Mervielde, Braet, & Bosmans, 2004). Most examinations of the interactions between parenting and child temperament in the prediction of child problem behavior have targeted two areas of parenting: discipline and warmth/sensitivity. However, little attention has been given to other specific parenting behavior that might influence child problem behaviors. Therefore, this study is designed to examine the interactions between child

temperament and the parenting behaviors ignoring of misbehavior and overprotection in the prediction of both internalizing and externalizing child problem behavior.

**Ignoring of misbehavior and child problem behaviors.** One of the parenting behaviors examined in this study is maternal ignoring of misbehavior. Parental ignoring of misbehavior is operationalized as parental acts of omission or indirectly harmful behavior that exposes children to negative influences (Knutson, DeGarmo, & Reid, 2004). Permissive parenting might include a general ignorance of misbehavior (Robinson, Mandleco, Olsen, & Hart, 1995). Evidence shows that permissive parenting is associated with child and adolescent internalizing and externalizing behavior (Jewell & Stark, 2003; Querido, Warner, & Eyberg, 2002; Thompson, Hollis, & Richards, 2003). Permissive parenting is often accompanied by a lack of structure, inconsistency and underinvolvement (Patterson, Capaldi, & Bank, 1990; Webster-Stratton, 1990). Toddlers require almost constant supervision and guidance when they explore the world and exert their independence (DeVito & Hopkins, 2001). It is reasonable, therefore, that ignoring misbehavior and thus be more tolerant of children's impulses including aggression (Maccoby & Martin, 1983) would lead to early displays of disruptive behavior which could result in the development of externalizing problems (DeVito & Hopkins, 2001). Permissive parenting has also been directly linked to impulsiveness when the parent is the same gender as the child (Patock-Peckham & Morgan-Lopez, 2006). Children who under-regulate their behavior or emotions may, due to their impulsiveness, irritate peers and, thus, become disliked or even rejected by peers. Likewise, children's social problems may cause them to act in an anxious-withdrawn manner among peers (Ladd, 2006). According to the diathesis-stress model the relation described above is dependent of children's easy or difficult temperament. Thus, more research which includes child's temperament as a moderator is needed to help understand the relation between parental ignoring and both internalizing and externalizing child problem behavior.

**Overprotection and child problem behaviors.** The other parenting behavior examined in this study is overprotection. Parental overprotection is a level of maternal or paternal protection that is excessive, taking into account the developmental level and abilities of the child (Thomasgard, Metz, Edelbrock, & Shonkoff, 1995). Although studies suggest that parental overprotection can have negative effects on the developing child (e.g., Burbach, Kashani, & Rosenberg, 1989; Miller, King, Shain, & Naylor, 1992), little is known about the underlying mechanisms that may explain this relation. For example, theoretical discussions suggest that parental overprotection undermines a child's level of independency (e.g., Anderson & Coyne, 1993; Clay, 1997; Thomasgard & Metz, 1993). However, the relative importance of parenting for internalizing and externalizing problem behavior developing early in childhood is uncertain (Bayer, Sanson, & Hemphill, 2006). Evidence shows that parental overprotection is significantly associated with antisocial behavior among boys and girls (Dekovic, Janssens, & Van As, 2003; Veenstra et al., 2006). Veenstra et al. (2006) suggest that individual autonomy is valued highly among young generations. It is reasonable, therefore, that children develop antisocial behavior as an act of protest against too much parental interference (Veenstra et al., 2006). Another study found that both aggressive and delinquent children were characterized by high paternal overprotection but low maternal overprotection (Hiramura, Uji, Shikai, Chen, Matsuoka, & Kitamura, 2010). Bayer et al. (2006) found that protective parenting is also a predictor of early childhood internalizing difficulties. According to Muris, Meesters, Merckelbach, and Hülßenbeck (2000) this is because overprotection is positively associated with worry. Worry is a psychopathological feature which is notably present in anxiety disorders (Muris, Meesters, & van den Berg, 2003). Thus, it is likely that the results reported by Muris et al. (2000) also apply to internalizing problems in general (Muris et al., 2003). Another possible explanation for the relation between overprotection and internalizing problem behavior are coercive parent-child

interactions. Literature on children's externalizing problems has detailed how coercive parent-child interactions become entrenched over time (Sanders, Gooley, & Nichelson, 2000). The same is likely to be true for overprotective parenting interactions. As children develop more anxiety and distress, parents are likely to respond with more overprotective in attempts to reduce this distress (Bayer et al., 2006). According to the diathese-stress model the relations described above are dependent of children's easy or difficult temperament. Thus, more research which include child's temperament is needed to help understand the relation between parental overprotection and both internalizing and externalizing child problem behavior.

### **Child temperament and child problem behaviors**

The role of temperament in adaptive functioning has been the subject of research for decades (Graham, Rutter, & George, 1973). There are many different studies that examined susceptibility of children with a classification of temperamental style, namely difficultness (Bradley & Corwyn, 2008). Difficult temperament includes features such as anger, high reactivity, and fearfulness (Rothbart & Bates, 1998). Soon after birth, children show a great deal of variation in behavioral dimensions considered to be temperamental (e.g., emotionality, activity level, attention/persistence and reactivity). For example, some children cry easily and intensely whereas others are more easy going; some are highly active and always on the go where others are more serene. Temperament theories suggest that such individual differences have a biological or constitutional foundation (Saudino, 2005). Research shows that ratings of difficult temperament are quite stable during infancy and early childhood (Carnicero, Perez-Lopez, Salinas, & Martinez-Fuentes, 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000; Saudino, 2005). The negative relation between parenting constructs and child behavior problems may be due to a third variable, such as individual child temperament (Stormshak, Bierman, McMahon, & Lengua, 2000). Moreover, studies have shown links between difficult temperament measured early in life and behavior problems (Belsky, Friedman, & Hsieh,

2001; Lawson & Ruff, 2004). A couple of studies show relations between child temperament and problem behavior, with negative emotionality as a general risk factor (Eisenberg et al., 2000). For example, child negative emotionality (e.g., high levels of anger and/or fearfulness) has been related to both internalizing and externalizing problems among preschool- and school-aged children (Sanson, Hemphill, & Smart, 2004). In this study we examine a more specific kind of child temperament, namely anger.

Researchers have found that children high in anger, frustration, and hostility tend to exhibit externalizing problems (e.g., Colder & Stice, 1998; Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996; Zahn-Waxler, Cole, Richardson, Friedman, Michel, & Belouad, 1994). Although anger is thought to reflect the function of the approach system (Derryberry & Rothbart, 1997; Rothbart & Posner, 2006) and thus to be more directly related to aggression or externalizing problems (Eisenberg et al., 2005; Kochanska & Knaack, 2003; Olsen, Sameroff, Kerr, Lopez, & Wellman, 2005), it is less clear if anger is also related to internalizing child problem behavior. Some studies found no significant relations between anger and internalizing child problem behavior (e.g., Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998; Zahn-Waxler et al., 1994). However, anger may also relate to internalizing problems through neurochemical systems that regulate both aggression and anxiety (e.g., Spont, 1992). In addition, anger might relate indirectly to internalizing problems by impairing children's social relationships (Dougherty, 2006), which can provoke anxiety or have downstream depressogenic effects. Consistent with these theories, empirical associations between anger or irritability and internalizing problems (e.g., psychosomatic problems, depression) have been found in European American samples (e.g., Eisenberg, Chang, Ma, & Huang, 2009; Lengua, 2006; Morris, Silk, Steinberg, Sessa, Avenevoli, & Essex, 2002; Muhtadie, Zhou, Eisenberg, & Wang, 2013).

### **The moderating role of child temperament**

Although the main effects of child temperament and parenting on child problem behavior have been extensively documented, less is known about the interactive effects of temperament, parenting and child problem behaviors (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; O'Connor & Dvorak, 2001). Thus, less is known about how child temperament and environmental influences interact to predict changes in problem behaviors (Leve, Kim, & Pears, 2005). A couple of studies also used negative emotionality or frustration as a moderator in the relation between parenting and child problem behaviors. The operationalization of negative emotionality and frustration in the studies described below includes anger. For example, Lengua (2008) examined if frustration exacerbated the effects of the parenting behaviors inconsistent discipline and rejection. In this study was found that frustration moderates the relation between inconsistent discipline and internalizing problems. Thus, children high in frustration showed more internalizing problems due to inconsistent discipline than children low in frustration. Also, the relation between rejection and externalizing problems was stronger for children high in frustration (Lengua, 2008). Another study by Sentse, Veenstra, Lindenberg, Verhulst, & Ormel (2009) found also an interaction between parenting and frustration. They found that sensitivity to parental overcontrol for children high in frustration seems to be specific to externalizing problems (Sentse et al. 2009). Also, for children high in frustration, maternal hostility and rejection were associated with greater externalizing, but not internalizing problems (Sentse et al., 2009). Finally, Belsky (1998) examined if negative emotionality acted as a moderator in the longitudinal relationship between parenting (Positive Parenting and Negative Parenting) and externalizing problems. The operationalization of negative emotionality includes anger. In this study was found that negative mothering proved more predictive of both externalizing problems, whereas fathers predicted less inhibition in the case of children who were highly negative as infants than in

the case of those who were low in negative emotionality (Belsky, 1998). These associations suggest that an interaction between child frustration and parental behaviors exists.

In this study, slightly different parenting behaviors will be examined. Indeed, there are several studies that already linked maternal ignoring of misbehavior and maternal overprotection to both internalizing and externalizing child problem behavior (e.g., Jewell & Stark, 2003; Querido et al., 2002). Thus, the interaction effects of maternal ignoring of misbehavior and maternal overprotection, and child's anger may predict child problem behaviors. Drawing on the above we formulate the following four hypotheses:

*Hypothesis 1: The relation between maternal overprotection at T1 and internalizing child problem behavior at T2 is stronger for children with high levels of anger, compared to children with lower levels of anger.*

*Hypothesis 2: The relation between maternal overprotection at T1 and externalizing child problem behavior at T2 is stronger for children with high levels of anger, compared to children with lower levels of anger.*

*Hypothesis 3: The relation between maternal ignoring of misbehavior at T1 and internalizing child problem behavior at T2 is stronger for children with high levels of anger, compared to children with lower levels of anger.*

*Hypothesis 4: The relation between maternal ignoring of misbehavior at T1 and externalizing child problem behavior at T2 is stronger for children with high levels of anger, compared to children with lower levels of anger.*

## **Method**

### **Participants and Procedures**

**Participants.** Families ( $N = 275$ ) participated in a short-term longitudinal study of parenting, child temperament and child problem behavior during early childhood. Children in kindergarten and their primary caretakers were recruited via schools. The total sample consisted of 369 parents, with 280 children on 49 schools located in the area Utrecht. From

the 369 parents, 264 were mothers, and 105 were fathers. This study focuses only on the participating mothers who completed data on the measures of interest which were examined for this study. Missing values occurred when no data value was stored for the variables. From the 264 participating mothers, 28.8 percent had missing data.

Participating children were, on average, 4 years and 8 months ( $SD = 7.2$  months, range: 3 years and 7 months – 6 years and 2 months) at the screening, 5 years and 1 month ( $SD = 7.1$  months, range: 3 years and 1 month – 6 years and 5 months) at Time 1 and 5 years and 7 months ( $SD = 7.2$  months, range: 4 years and 5 months – 7 years and 2 months) at Time 2. At the screening 41 percent of these children were first-born, 34 percent were second-born, and 25 percent were third-born or later-born. 51 percent of children were girls, 45 percent were boys and the other 4 percent were missing values. 94 percent of children were Dutch, .8 percent were Dutch-German, .4 percent were Antillean, .4 percent were Armenian, .4 percent were Dutch-British, and .4 percent were Dutch-Moroccan. Mothers were on average 38 years of age ( $SD = 4.4$ ). The median family income was between €60 000 and €75 000.

Comparisons between the mothers included versus excluded (due to missing data) in the analyses revealed that mothers in families who were excluded had a lower degree in education. From the mothers who were included 17 percent had a degree in vocational education, 38.3 percent of mothers had a degree in higher vocational education, and 38.3 percent of mothers had a university degree. From the mothers who were excluded 20.8 percent had a degree in vocational education, 37.5 percent had a degree in higher vocational education, and 23.6 had a university degree. There were no differences between the two groups on the other demographic variables.

**Procedure.** A random sample of 300 schools in the area Utrecht was asked by telephone to participate in the study. Schools for special education were not approached. Information about the study was distributed to schools by mail and they were called back to

ask whether they would participate or not. Forty-nine schools agreed. At these schools letters were handed out, advertisements were placed and on a few schools a presentation was given to recruit parents. Parents from these 49 schools could subscribe themselves voluntarily via an online questionnaire where information about demographic variables and child temperament was obtained. Parents signed informed consent and assent forms prior to their participation. Four months later parents completed a self-administrated questionnaire about parenting behavior and child problem behaviors. The parents were compensated with a €5 gift card upon receipt of the questionnaire. Reminders were sent to get the highest possible response. Seven months later parents completed the same questionnaires about parenting behavior and child problem behaviors. To keep parents involved in the study, free tickets to an amusement park were raffled and also newsletters with information about the progress of the study were sent.

### **Measures**

**Child temperament.** At the screening, mothers completed the Child Behavior Questionnaire-Short Form (CBQ-SF; Putnam & Rothbart, 2006) through a web-based screening questionnaire. For this report, the anger/frustration proneness subscale was examined. Mothers rated how often their child exhibited specific behaviors. Items were rated on a 7-point scale ranging from 1 (*extremely untrue of your child*) to 7 (*extremely true of your child*), and a N/A (*does not apply*) response option was also available. The subscale for anger (e.g., Has a temper tantrum when she or he doesn't get what she or he wants, 6 items,  $\alpha = .72$ ) was computed by averaging ratings (with reverse scoring when appropriate) across items. The creation of the child behavior questionnaire was in accordance with previous research in which child temperament has been defined as constitutionally based individual differences in reactivity and self-regulation, influenced over time by heredity and experience (Rothbart & Derryberry, 1981).

**Parenting.** At Time 1, mothers completed the self-reported questionnaire Egna Minnen Beträffande Uppfostran-Parent version (EMBU-P; Castro, de Pablo, Gómez, Arrindell, & Toro, 1997). The EMBU-P was designed for parents by using the original EMBU (Perris, Jacobsson, Lindström, Von Knorring, & Perris, 1980) as a point of departure, and in doing so, maintaining the same items, the same format (1-4 Likert-type scale) and the same scoring key (Castro et al., 1997). The items of the EMBU-P reflect parents' current thoughts on their own parenting practices and experiences of parenting behavior. In this study maternal overprotection will be examined. Mothers rated how often they are overprotective towards their child on a 4-point scale ranging from 1 (*no, never*) to 4 (*yes, almost always*). The subscale for overprotection (e.g. If your child has had little secrets, you have wanted to know them, 10 items,  $\alpha = .42$ ) was computed by averaging ratings across items. In this study the EMBU-P shows low internal consistency.

Mothers also completed the self-reported Parenting Practices Questionnaire (PPQ; Robinson et al., 1995) at Time 1. The PPQ is based on Baumrind's (1971) authoritative, authoritarian, and permissive typologies. These typologies are currently widely employed models of parenting styles (Baumrind, 1971). In this study part of the permissive parenting style will be examined via the scale ignoring misbehavior. Mothers rated how often they ignore the misbehavior of their child on a 4-point scale ranging from 1 (*never*) to 5 (*always*). The subscale ignoring misbehavior (e.g. Allows child to annoy someone else, 4 items,  $\alpha = .52$ ) was computed by averaging ratings across items. In this study the PPQ shows low internal consistency.

**Child problem behaviors.** At Time 1 and 2, mothers completed the Child Behavior Checklist (1½-5; Achenbach & Rescorla, 2000), a widely used measure of child behavior problems. Mean scores of child internalizing (emotionally reactive, anxious/depressed, somatic complaints and withdrawn subscales) and externalizing (attention problems and

aggressive behavior subscales) behavior problems were computed. Items were rated on a 3-point scale ranging from 0 (*not true*) to 2 (*very true or often true of the child*). Subscales showed good internal consistency on T1 (internalizing, 36 items,  $\alpha = .85$ , externalizing, 24 items,  $\alpha = .89$ ) and on T2 (internalizing, 36 items,  $\alpha = .86$ , and externalizing, 24 items,  $\alpha = .89$ ). Mother reports for internalizing and externalizing behavior were averaged to create composites of internalizing and externalizing problems.

### **Control Variables**

Gender was used as control variable in the analysis. Gender has been shown to be related to child problem behaviors. Likewise, boys exhibit greater externalizing problems, and girls exhibit greater internalizing problems, although such gender-related differences (especially for internalizing problems) do not tend to emerge until later in development (Campbell, 2002).

### **Analytical Procedures**

To test the hypotheses where anger acted as moderator two hierarchical multiple regression analyses will be conducted for the dependent variables at T2 by using the variables at T1 as predictors, with four steps in each analysis. The total scores on internalizing problems and externalizing problems were used as dependent variables in these two analyses. In both analyses, step 1 included internalizing and externalizing child problems at T1. Step 2 included gender as control variable because of its established relation to child behavior problems. Step 3 included the main variables overprotection, ignore and anger. The last step included two interaction terms, namely the interactions between the two parenting variables and child temperament. To reduce the problem of inflated error due to collinearity, all independent variables were centered (Jaccard, Turrisi, & Wan, 1990).

Faul, Erdfelder, Buchner, and Lang (2009) recommend that the size of the sample is important for the power of a study. In most studies a power of .80 or higher is recommended

(Faul et al., 2009). The power of this study for a small ( $f^2 = 0.02$ ), medium ( $f^2 = 0.15$ ) and large effect size ( $f^2 = 0.35$ ), by using an alpha value of 0.05, are 0.37, 1.0, and 1.0 respectively. This means that with the minimum sample size ( $N = 179$ ) of this study there is a hundred percent chance that a medium or large statistical effect in the sample will be found, if this effect exists in the population. Literature suggests that the effect of parenting behaviors on child problem behaviors occurs later in development most of the time (Campbell, 2002). This is why a small or medium effect in the sample is expected, although there is less chance to find a small effect.

### Results

Hierarchical multiple regression was performed to investigate the influence of anger as a moderator in the relationship between maternal ignoring of misbehavior and maternal overprotection, and both internalizing and externalizing child problem behavior. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. No violations were found of the assumptions above.

The correlations among study variables were examined and these are presented in Table 1. All significant correlations were weak to moderate, ranging from  $r = .14, p < .05$  to  $r = .45, p < .001$ . This indicates that multicollinearity was unlikely to be a problem (Tabacknick & Fidell, 2007). The correlations between the predictor variables and the dependent variables (internalizing child problem behavior at T2 and externalizing child problem behavior at T2) were all weak to moderate strong, ranging from  $r = .14, p < .05$  to  $r = .70, p < .001$ . Internalizing child problem behavior at T1 and externalizing child problem behavior at T1 were significantly correlated with, respectively, internalizing child problem behavior at T2 ( $r = .59, p < .001$ ) and externalizing child problem behavior at T2 ( $r = .70, p < .001$ ). This finding indicates that child problem behavior is quite stable over time. Anger as a predictor variable was also significantly correlated with both internalizing child problem behavior at T2

( $r = .35, p < .001$ ) and externalizing child problem behavior at T2 ( $r = .33, p < .001$ ). Finally, the parenting behaviors maternal ignoring of misbehavior and maternal overprotection were also significantly correlated with both internalizing child problem behavior at T2 ( $r = .16, p < .05$ ;  $r = .25, p = .001$ ) and externalizing problem behavior at T2 ( $r = .14, p < .05$ ;  $r = .20, p = .01$ ).

### **Predicting internalizing child problem behavior**

In the first step of the hierarchical multiple regression analysis, two predictors were entered: internalizing child problem behavior at T1, and externalizing child problem behavior at T1. This model was statistically significant  $F(2, 174) = 49.36; p < .01$  and explained 36.2% of the variance in internalizing child problem behavior at T2 (Table 2). The introduction of gender explained an additional 0% of the variance in internalizing child problem behavior at T2, after controlling for internalizing child problem behavior at T1, and externalizing child problem behavior at T1 ( $\Delta R^2 = .00; F(1, 173) = .00; p = .98$ ). In the third step (with entry of the variables anger, maternal ignoring of misbehavior and maternal overprotection) anger/frustration positively predicts internalizing child problem behavior ( $\beta = .15, p = .02$ ). The introduction of this variable explained an additional 4.3% of the variance in internalizing child problem behavior at T2 ( $\Delta R^2 = .04; F(3, 170) = 4.09; p < .01$ ). In the final step (with entry of the interaction variables) the variables explained an additional 0.3% of the variance ( $\Delta R^2 = .00; F(2, 168) = .48; p = .62$ ) in internalizing child problem behavior at T2. Adding the interaction variables did not result in statistically significant relations, indicating that in this study there is no significant moderation of the association between maternal ignoring of misbehavior and maternal overprotection, and child's internalizing behavior problems at T2 by anger. Hypothesis 1 examined if the relation between maternal overprotection at T1 and internalizing child problem behavior at T2 was moderated by anger. This relation was found to be non-significant ( $\beta = .05, p > .05$ ). Hypothesis 3 examined if the relation between

maternal ignoring of misbehavior at T1 and internalizing child problem behavior at T2 was moderated by anger. Also this relation was found to be non-significant ( $\beta = -.04, p > .05$ ).

### **Predicting externalizing child problem behavior**

In the first step of hierarchical multiple regression analysis, two predictors were entered: internalizing child problem behavior at T1, and externalizing child problem behavior at T2. This model was statistically significant  $F(2, 176) = 88.29, p < .01$  and explained 50.1% of the variance in externalizing child problem behavior at T2 (Table 3). The introduction of child gender explained an additional 0.1% variance in externalizing child problem behavior at T2, after controlling for internalizing child problem behavior at T1, and externalizing child problem behavior at T1 ( $\Delta R^2 = .00; F(1, 175) = .33, p = .57$ ). In the third step (with entry of the variables anger, maternal ignoring of misbehavior and maternal overprotection) neither of the variables were statistically related to externalizing child problem behavior at T2. The introduction of these variables explained an additional 1.2% of the variance in externalizing child problem behavior at T2 ( $\Delta R^2 = .01; F(3, 172) = 1.40, p = .25$ ). In the final step (with entry of the interaction variables) the variables explained an additional 0.3% of the variance in externalizing child problem behavior ( $\Delta R^2 = .00; F(2, 170) = .49, p = .62$ ). Adding the interaction variables did not result in statistically significant relations, indicating that in this study there is no significant moderation of the association between maternal ignoring of misbehavior and maternal overprotection, and child's externalizing behavior problems at T2 by levels of anger. Hypothesis 2 examined if the relation between maternal overprotection at T1 and externalizing child problem behavior at T2 was moderated by anger. This relation was found to be non-significant ( $\beta = .04, p > .05$ ). Hypothesis 4 examined if the relation between maternal ignoring of misbehavior at T1 and externalizing child problem behavior at T2 was moderated by anger. Also this hypothesis was found to be non-significant ( $\beta = -.04, p > .05$ ).

### **Discussion**

Based on previous research it was hypothesized that anger would moderate the relationship between the parenting behaviors maternal ignoring of misbehavior and maternal overprotection, and both internalizing and externalizing child problem behavior. Instead, associations of ignoring of misbehavior and overprotection with internalizing and externalizing child problem behavior did not depend on children's level of anger. There was no support for the study's four hypotheses. Results from this study provide no support for the diathesis-stress model.

Hypothesis 1 examined if the relationship between maternal overprotection and internalizing child problem behavior is stronger for children with high levels of anger, compared to children with lower levels of anger. This interaction was found to be non-significant. Reaction to parental overprotection can be both withdrawal (internalizing) or aggressiveness (externalizing) (Pedersen, 2000; Rothbaum & Weisz, 1994). However, the combination with a anger temperament would form a risk that is specific for externalizing problems, because of the domain-specific effect of temperament (Sentse et al., 2009). Whereas overprotection is also linked to internalizing problem behavior (see Bayer et al., 2006), both children with high levels of anger and lower levels of anger would respond frustrated because parental overprotection hinders children from achieving a sense of autonomy (Sentse et al., 2009). It is possible that anger as a moderator is not a factor of influence in the relationship between maternal overprotection and internalizing child problem behavior.

Hypothesis 2 examined if the relationship between maternal overprotection and externalizing child problem behavior is stronger for children with high levels of anger, compared to children with lower levels of anger. Based on the above discussion it is reasonable that children with high levels of anger develop more externalizing problem behavior due to overprotection. However, this interaction was found to be non-significant.

Moreover, no main effect of maternal overprotection on externalizing child problem behavior was found in this study. Parental overprotection is a suboptimal parenting behavior characterized by high levels of overcontrol (Gallagher & Cartwright-Hatton, 2008). Although children with high levels of anger would respond more frustrated due to parental overprotection (Sentse et al., 2009), it is possible that the effect of maternal overprotection was not strong enough for a significant difference in externalizing problems among children with high levels of anger versus children with lower levels of anger.

Hypothesis 3 examined if the relationship between maternal ignoring of misbehavior and internalizing child problem behavior is stronger for children with high levels of anger, compared to children with lower levels of anger. This hypothesis was found to be non-significant. The combination with an angry temperament would form a risk that is specific for externalizing problems, because of the domain-specific effect of temperament (Sentse et al., 2009). It is reasonable, therefore, that no differences are found among children with high levels of anger versus children with lower levels of anger in internalizing problem behavior due to ignoring of misbehavior. Probably, anger in practice does not act as a moderator in the relationship between maternal ignoring of misbehavior and internalizing child problem behavior.

Hypothesis 4 examined if the relationship between maternal ignoring of misbehavior and externalizing child problem behavior is stronger for children with high levels of anger, compared to children with lower levels of anger. This hypothesis was found to be non-significant. It is reasonable that ignoring misbehavior and thus be more tolerant of children's impulses would lead to early displays of disruptive behavior which could result in the development of externalizing problems (DeVito & Hopkins, 2001). Although the impulses of children with high levels of anger would be more intense, children with lower levels of anger would also show disruptive behaviors due to ignoring of misbehavior. After all, all toddlers

require almost constant supervision and guidance when they explore the world and exert their independence (DeVito & Hopkins, 2001). Also, compared to aggressive discipline behavior such as psychological aggression, ignoring of misbehavior is a less aggressive discipline behavior which makes the child feel more responsible for their behavior and also understand the effects of their misbehavior on others (Fox, 2012). As a result, there is probably no significant difference in externalizing problem behavior amongst children with high levels of anger and children with lower levels of anger due to ignoring of misbehavior.

There are also a few more general explanations why significant relationships were not found. This study examined links between parenting and child problem behaviors over relatively short time intervals. Most studies examining the relation between parenting and child problem behaviors used longitudinal data with over three years between wave 1 and wave 2 (e.g., Muhtadie et al., 2013; Prinzie, van der Sluis, de Haan, & Dekovic, 2010; van der Voort, Linting, Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2013). Following the literature, child problem behaviors seem to occur later in the development of children due to parenting. In this study child problem behaviors are measured early in childhood and shortly after measuring maternal ignoring of misbehavior and maternal overprotection. It is possible that child problem behaviors in this study were measured too early to determine the differential effect of parenting. Probably, there was not enough time for the developmental pathways of vulnerable and less vulnerable children to go another direction when influenced by the same parenting behaviors. Given the short time intervals in this study, it is not odd that no interaction effects were found. Another explanation for not finding any significant relationships could be that field studies have more difficulty detecting moderator effects or interactions than do experiments. This is because in field studies there is a greater variety of answers than in experimental studies. This means that efficiency of the moderator and the statistical power is much lower than in experimental studies (McClelland & Judd, 1993). In

this study there was only 37 percent chance that a small effect in the sample ( $N = 179$ ) was found, if this effect exists in the population. If a small effect exists in the population, there is a chance that this effect is not found in this study. Explanation three for not finding any significant interaction effect is the measurement technique that has been used. The only measure of the constructs was via maternal report. Although measures of this kind provide information about parenting behaviors, there is an advantage to be gained from using observational methods, which study how parents actually behave in interaction with their children. Studies using direct observations (e.g., Bradley & Corwyn, 2008; Holmbeck et al., 2002; van Zeijl et al., 2007) of temperamental characteristics might produce somewhat different findings. Zaslow et al. (2006) found that observational parenting measures showed the strongest and most consistent predictions of child outcomes. According to Fiske (1987) discrepancies between self-reports and direct observations arise because the answers given in self-reports are based on individual interpretations and impressions of events that may, nonetheless, have predictive value. In this study mothers self-reported on their own parenting behaviors, child temperament and child problem behaviors which could give other findings than using both self-reported questionnaires and direct observations. For example, the perception of mothers about their own parenting behaviors may differ from their actually parenting behaviors that can be observed from outside. Although self-reported questionnaires are certainly essential for exploring differences in parents perceptions of their own parenting, objective behavioral observations of both parents' parenting styles and behaviors in the home is clearly needed for future research in this area (Winsler, Madigan, & Aquilino, 2005).

Surprisingly, anger in this study is positively related to internalizing child problem behavior, but not to externalizing child problem behavior. Dougherty (2006) and Eisenberg et al. (2009) argued that anger might relate indirectly to internalizing problems by impairing children's social relationships, which can provoke anxiety or have downstream depressogenic

effects. The association of anger with internalizing problems appears to develop with age (see Eisenberg et al, 2005), perhaps as a reaction to increasing peer rejection. In contrast, the pattern of association between anger and externalizing problems is evident from a fairly young age (e.g., Eisenberg et al., 2001; Gilliom, Shaw, Beck, Schonberg, & Lukon, 2002). Probably, at wave 1 children with high levels of anger showed already many externalizing problems which makes it difficult to find a significant increase in externalizing problems at wave 2. The finding that children with higher levels of anger showed more internalizing behavior later in development is consistent with the fact that internalizing problems appears to develop with age.

### **Strengths and Weaknesses**

This study is characterized by several strengths. First, the specificity of the parenting behaviors in relation with child temperament is a strength. Most examinations of the interactions between parenting and child temperament in the prediction of child problem behavior have targeted two areas of parenting: discipline and warmth or sensitivity (Bradley & Corwyn, 2008). In this study two new parenting behaviors were introduced. Maternal ignoring of misbehavior and maternal overprotection are two parenting behaviors that are hardly studied (but see Holmbeck et al., 2002). Yet, it is important to know how they are related to child problem behaviors. By adding more parental behaviors to the stream of literature a more specific view is made about how parenting, child temperament, and child problem behavior interacts. Second, a strength of this study is the power. Because of the large sample size there was a hundred percent chance that a medium or large statistical effect in the sample would be found, if this effect exists in the population. However, because of the short intervals a small or medium effect in the sample was expected, although there was less chance to find a small effect. The results suggest that no effect was found in this study. The last strength of the study is the longitudinal data that was used. This means that there were two

waves for both internalizing and externalizing child problem behavior. In this way, the effects of the parenting behaviors were well measured.

Despite the strengths of this study there are also a few limitations. First, a limitation is the low internal consistency of the questionnaires for maternal overprotection and maternal ignoring of misbehavior. It is possible that these unreliable measurements contributed in not finding interaction effects in this study. Although the internal consistency of the constructs is low, the questionnaires (Egna Minnen Beträffande Uppfostran-Parent version and Parenting Practices Questionnaire) are widely known and used in several studies (e.g. Cohen, Deblinger, Mannarino, & Steer, 2005; Liber et al., 2008). Second, the use of one measurement technique (also discussed above), namely self-reported questionnaires is a weakness. The fact that findings from studies that have used observational data methods and those that have used parent-report measures of parenting on children's problem behaviors are relatively consistent (Hart et al., 2003) suggests, however, that different information sources may, at least in part, yield similar information about parental behaviors. The last limitation is the absence of fathers in this study. The importance of fathers is well recognized (Coley, Votruba-Drzai, & Schindler, 2008; Lewis & Lamb, 2003). In this study, the results can only be generalized to the parenting behaviors of mothers. Examining both the parenting behaviors of mothers and fathers may offer a more complete understanding about the development of child problem behavior.

### **Future research**

In this study we only examined the negative influences of parenting on child problem behaviors. In line with what would be expected according to the differential susceptibility hypothesis, further research should also examine the positive influences of parenting on child problem behaviors. More research is needed in order to add more knowledge about the moderating role of anger between the parenting behaviors ignoring of misbehavior and

overprotection, and both internalizing and externalizing child problem behavior. Also, the direct relationship between ignoring of misbehavior and overprotection and child problem behavior needs to be studied more in order to create a deeper understanding. This study is a first step in order to create this deeper understanding because it contains very specific parenting behaviors and a specific child temperament variable. Results about specific parenting behaviors make it easier for parents to apply scientific findings in practice. However, to advance the differential susceptibility literature or the diathesis-stress model, more longitudinal research is needed to gain insight in the role of child temperament in the development of child problem behaviors.

### **Practical Implications**

Internalizing and externalizing child problem behavior at T1 are positively associated with internalizing and externalizing child problem behavior at T2. This finding suggests that child problem behaviors are relatively stable over time. This is in line with previous research suggesting that internalizing and externalizing child problem behavior are rather stable from the early school years onwards (e.g., Denham, Workman, Cole, Weissbrod, Kendziora, & Zahn-Waxler, 2000; Kovacs & Devlin, 1998). This implies it is important to detect child problem behaviors early in childhood because the problem behaviors will continue when ignored. This study could add some substantial knowledge about parenting, child problem behaviors, and the moderating role of child temperament. Although anger did not act as a moderator, it is positively related to internalizing child problem behavior. This suggests that children with high levels of anger are more likely to develop internalizing child problem behavior than children with low levels of anger. So, the last practical implication which is given by the questionnaires presents the important role of anger as child temperament in the development of child problem behaviors. When children have high levels of anger it is

important for parents to be aware of their parenting behaviors in order to prevent internalizing child problem behavior.

### **Conclusion**

This study tries to increase knowledge about parenting, child problem behaviors and the moderating role of child temperament. Two hierarchical multiple regression analyses were conducted for the dependent variables at T2 by using the variables at T1 as predictors.

Maternal ignoring of misbehavior and maternal overprotection did not predict internalizing and externalizing child problem behavior. Only children's anger prospectively and uniquely predicted internalizing problem behavior. In this study the longitudinal relationship between maternal ignoring of misbehavior and maternal overprotection, and child problem behavior was not moderated by children's anger. The above results suggest that: a) children with high levels of anger were not more affected by maternal ignoring of misbehavior and maternal overprotection than children with lower levels of anger and b) children with high levels of anger showed more internalizing problem behavior later in development.

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PARENTING, CHILD TEMPERAMENT, AND CHILD PROBLEM BEHAVIORS

Table 1

*Descriptive Statistics and Correlations for Study Variables (N = 179)*

Variables	1	2	3	4	5	6	7	8
1. Internalizing Behavior T2	1							
2. Externalizing Behavior T2	.55**	1						
3. Internalizing Behavior T1	.59***	.38***	1					
4. Externalizing Behavior T1	.36***	.70***	.44***	1				
5. Gender Child <sup>a</sup> (0 = boy, 1 = girl)	.04	.03	.08	-.01	1			
6. Anger/frustration	.35***	.33***	.33***	.31***	.15*	1		
7. Ignore T1	.16*	.14*	.05	.16*	-.15*	.03	1	
8. Overprotection T1	.25***	.20*	.23**	.20**	.23**	.14*	.06	1
<i>Means</i>	0.22	0.41	0.25	0.48		3.39	1.73	1.65
<i>Standard Deviations</i>	0.18	0.29	0.19	0.30		0.97	0.40	0.24
<i>Range</i>	0.00-1.35	0.00-1.49	0.00-1.21	0.00-1.79		1.33-5.67	1.00-3.00	1.10-2.30
<i>Possible Range</i>	0-2	0-2	0-2	0-2		1-7	1-5	1-4

Note. T1 = wave 1; T2 = wave 2; N = 179

<sup>a</sup> Correlations with gender reflect a point-biserial correlation

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

PARENTING, CHILD TEMPERAMENT, AND CHILD PROBLEM BEHAVIORS

Table 2

*Hierarchical Regression Model Predicting Internalizing Child Problem Behavior at T2*

	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Change	<i>B</i>	<i>SE</i>	<i>β</i>
<b>Step 1</b>	.36***	.36***			
Internalizing Behavior T1			.46	.06	.49***
Externalizing Behavior T1			.04	.04	.07
<b>Step 2</b>	.36	.00			
Gender Child			-.01	.02	-.03
<b>Step 3</b>	.41**	.04**			
Anger/frustration			.02	.01	.15*
Ignore T1			.04	.02	.10
Overprotection T1			.07	.04	.11
<b>Step 4</b>	.41	.00			
Ignore T1*Anger/frustration			-.01	.02	-.04
Overprotection T1*Anger/frustration			.03	.04	.05

*Note.* T1 = wave 1; T2 = wave 2; *N* = 179.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

PARENTING, CHILD TEMPERAMENT, AND CHILD PROBLEM BEHAVIORS

Table 3

*Hierarchical Regression Model Predicting Externalizing Child Problem Behavior at T2*

	<i>R</i> <sup>2</sup>	<i>R</i> <sup>2</sup> Change	<i>B</i>	<i>SE</i>	<i>β</i>
<b>Step 1</b>	.50***	.50***			
Internalizing Behavior T1			.09	.10	.05
Externalizing Behavior T1			.63	.06	.64***
<b>Step 2</b>	.50	.00			
Gender Child			.01	.03	.01
<b>Step 3</b>	.51	.01			
Anger/frustration			.03	.02	.10
Ignore T1			.02	.04	.02
Overprotection T1			.06	.07	.05
<b>Step 4</b>	.52	.00			
Ignore T1*Anger/frustration			-.03	.04	-.04
Overprotection T1*Anger/frustration			.05	.07	.04

*Note.* T1 = wave 1; T2 = wave 2; *N* = 179.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.