



**The role of attachment in understanding children's and adolescents' depressive symptoms: An examination of associations with depressogenic personality, parenting and emotion regulation**

Katrijn Brenning

Promotor: Prof. Dr. C. Braet

Copromotor: Prof. Dr. B. Soenens

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The wise man must remember that while he is a descendant of  
the past, he is a parent of the future.

Herbert Spencer



# Dankwoord

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# Table of contents

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Chapter 1 - The role of attachment in understanding children’s and adolescents’ depressive symptoms: A general introduction.....	1
Part 1: Psychosocial processes in the development and intergenerational similarity of depressive symptoms.....	2
Part 2: Emotion regulation as a mediator in the relationship between attachment and depressive symptoms in children and adolescents .....	18
Summary of the empirical studies .....	22
References .....	23
Chapter 2 - An Adaptation of the Experiences in Close Relationships Scale- Revised for Use with Children and Adolescents.....	39
Introduction.....	40
Study 1.....	50
Study 2.....	56
Discussion .....	64
Acknowledgement.....	71
References.....	72
Chapter 3 - The role of depressogenic personality and attachment in the intergenerational similarity of depressive symptoms: A study with early adolescents and their mothers.....	83
Introduction.....	84
Method.....	94
Results .....	98
Discussion .....	105
References .....	113
Chapter 4 - The Role of Parenting and Mother-Adolescent Attachment in the Intergenerational Similarity of Internalizing Symptoms.....	125
Introduction.....	126
Method.....	135
Results .....	142

Discussion .....	146
References .....	154
Chapter 5 - Longitudinal dynamics of depressogenic personality and attachment dimensions in adolescence: An examination of associations with changes in depressive symptoms .....	167
Introduction .....	168
Method .....	181
Results.....	185
Discussion .....	190
References .....	201
Chapter 6 - Attachment and depressive symptoms in middle childhood and early adolescence: Testing the Validity of the Emotion Regulation Model of Attachment.....	217
Introduction .....	218
Study 1 .....	227
Study 2 .....	233
General Discussion.....	241
References .....	250
Chapter 7 - The emotion regulation model of attachment: An emotion-specific approach.....	267
Introduction .....	268
Study 1 .....	275
Study 2 .....	281
Discussion .....	287
References .....	295
Chapter 8 - General Discussion.....	307
An overview of the research findings .....	308
Methodological strengths and limitations of the present research .....	318
Clinical implications .....	320
Suggestions for future research.....	322
Conclusion.....	324



References .....	326
Nederlandse samenvatting.....	333
Referenties .....	355



# Chapter 1

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## **The role of attachment in understanding children's and adolescents' depressive symptoms: A general introduction**

The overall aim of the present dissertation is to investigate the role of attachment in explaining children's and adolescents' depressive symptoms. Several theories (e.g., attachment theory, Bowlby, 1969/1982) have pointed to the link between attachment and depressive symptoms. However, further research is needed to investigate specific dynamics involved in the association between specific attachment representations on the one hand and the development and intergenerational transmission of depressive symptoms on the other hand. The thesis consists of eight chapters: a general introduction, six empirical studies and a general discussion.

The general introduction presented in this chapter provides the reader with the theoretical background of the empirical studies. In a first section of this chapter, several psychosocial processes that could play a role in the development of depression are discussed. More specifically, the present project relies on recent theories about the role of attachment, personality and parenting in the development and intergenerational similarity of depressive symptoms. In a second section of this chapter, attention is paid to emotion regulation as a possible mediator in the relationship between attachment and depression in children and adolescents. Finally, at the end of this chapter, we present a summary of the empirical studies in this dissertation.

## **Part 1: Psychosocial processes in the development and intergenerational similarity of depressive symptoms**

### *Depression*

The term depression can refer to a symptom, a syndrome, or a disorder (Braet & Timbremont, 2008). Some of the most well-known depressive symptoms are the inability to have fun, a decrease of interest and a variety of negative feelings, including melancholy, apathy, feelings of unworthiness, and irritability. Such depressive symptoms can gather to a clear syndrome (Harrington, Rutter, & Fombonne, 1996). We speak of a depressive disorder when the depressive syndrome is present for a longer period of time and when the person's functioning is severely affected (Lewis & Miller, 1990). In the Diagnostical and Statistical Manual of mental disorders (DSM-IV-TR; American Psychiatric Association, 2000), the depressive disorder is described in the section of mood disorders. The main symptoms are depressed mood, diminished interest or pleasure in activities, significant weight loss, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feelings of worthlessness or excessive guilt, diminished ability to concentrate, and recurrent thoughts of death. In this project we study depression from a dimensional perspective, that is, we investigate the frequency and severity of depressive symptoms. The greater part of our research focuses on non-clinical samples of children and their parents, covering a broad range of people with different levels of depressive symptoms. This is in line with the recommendation of Angold and Costello (1993) who point to the importance of assessing symptoms rather than diagnostic categories, because the manifestation of specific disorders may change with age.

*The intergenerational similarity of depressive symptoms*

There is ample evidence that parental depression is a risk factor for psychopathology in children, and for depression in particular (Beardslee, Versage, & Gladstone, 1998; Connell & Goodman, 2002; Downey & Coyne, 1990; Gelfand & Teti, 1990; Goodman & Gotlib, 1999). In contrast to the majority of research, a minority of studies could not find evidence for the intergenerational transmission of depression (e.g., Besser and Priel, 2005). In this project, we aim to further examine associations between mothers' and children's depressive symptoms. Moreover, previous research found that children of parents with subclinical symptoms of depression report more depressive complaints compared to children in a control group (Forehand, McCombs, & Brody, 1987). The present research will examine the intergenerational similarity of depressive symptoms in general population samples, but also in a more heterogeneous sample including both referred and non-referred participants.

Previous studies on the transmission of depressive symptoms rarely started from a strong theoretical framework, such that this research was often rather descriptive in nature (Hammen, Shih, & Brennan, 2004). For this project, we rely on recent theories about the role of attachment, personality and parenting in the development and intergenerational transmission of depression.

*Attachment*

Insecure attachment has been identified as a risk factor for children's and adolescents' depressive symptoms. In this section, we will outline the basic assumptions of attachment theory and its relevance to research on the development and intergenerational transmission of depressive symptoms. Bowlby's attachment theory (1969/1982, 1979) is one of the most prominent

and well-established frameworks to conceptualize the relationship between parents and their children (Mikulincer, Shaver, & Pereg, 2003). Each person develops an attachment style which results from attachment experiences with caregivers. The attachment style is a pattern of relational expectations, emotions and behaviors (Fraley & Shaver, 2000; Shaver & Mikulincer, 2002). In initial research on attachment in infancy, three attachment styles were distinguished: secure attachment (B), anxious-avoidant attachment (A) and anxious-ambivalent attachment (C) (Ainsworth, Blehar, Waters, & Wall, 1978). Hazan and Shaver (1987) conceptualized parallel attachment styles in adult romantic relationships. Later, it was found that attachment styles can be better conceptualized as regions in a two-dimensional space (Bartholomew & Horowitz, 1991). This formulation of attachment posited four qualitative categories of attachment based on combinations of positive and negative working models of self and others: secure (positive self/positive other), preoccupied (negative self/positive other), dismissive avoidance (positive self/negative other), and fearful avoidance (negative self/negative other) (e.g. Bartholomew & Horowitz, 1991). In this dimensional approach a distinction is made between two types of avoidant attachment. The category of fearful-avoidant was distinguished from dismissive-avoidant in order to differentiate people who avoid close relationships due to fear of rejection, from people who avoid close relationships due to lack of desire to interact with others (Bartholomew & Horowitz, 1991). Recent research typically adopts two continuous dimensions as the best way to model attachment (Fraley & Spieker, 2003; Fraley & Waller, 1998; Roisman, Fraley, & Belsky, 2007). Brennan, Clark and Shaver (1998) found two major factors in a principal components analysis of 60 attachment scales: (a) attachment anxiety which involves preoccupation with social support, jealousy, fear and vigilance concerning abandonment and rejection, and (b) attachment avoidance which involves avoidance of intimacy,

discomfort with closeness, and self-reliance (Brennan et al., 1998; Fraley & Shaver, 2000). In this project, we will rely on this dimensional approach to conceptualize individual differences in attachment.

Although attachment theory is a life-span theory (Ainsworth, 1989; Bowlby, 1969/1982, 1973, 1979), most studies focused on attachment styles in infancy, early childhood (e.g., Ainsworth & Wittig, 1969; Bowlby, 1969/1982) or the period of adolescence and adulthood (e.g. Alexander, Feeney, Hohaus, & Noller, 2001; Cyranowski, et al., 2002; Rholes, Simpson, Campbell, & Grich, 2001). Comparably less research has been conducted in middle childhood and early adolescence. An examination of links between attachment and psychosocial development in this life period has been hampered by the scarcity of reliable and well-validated measures of attachment for this age group. In particular, to the best of our knowledge, no measure is available for this age group providing continuous scores for attachment anxiety and attachment avoidance. This is unfortunate because, from a developmental point of view, it is important to examine these attachment dimensions in middle childhood and early adolescence and to investigate the implications of attachment for psychosocial development at that age. Although children at this age start to expand their social roles beyond the family and spend more time with peers, they still seem to depend on a secure parental attachment figure in times of stress (Fraley & Davis, 1997; Hazan & Zeifman, 1994; Kerns, Tomich, & Kim, 2006). Therefore, one sidelong goal of this project (Chapter 2) is to develop a reliable and valid instrument to measure attachment anxiety and attachment avoidance in middle childhood children and early adolescents.

Attachment theory (Bowlby, 1969/1982, 1973) is in essence a theory of psychopathology. Bowlby (1973, 1980) postulated that the loss of secure attachment during infancy, childhood, or adolescence contributes to the development of depression (Mikulincer & Shaver, 2007). This loss can be due

to the death of a primary attachment figure or to repeated failure to form and maintain a secure relationship with a caregiver. This leads to the formation of pessimistic, hopeless representations of self and the broader interpersonal world. Insecurely attached people lean toward hopeless and helpless patterns of causal explanation; are susceptible to rejection, criticism, and disapproval; and suffer from self-criticism and destructive perfectionism. These destructive cognitive processes increase the vulnerability for depression. Mikulincer and Shaver (2007) made a review of more than 100 studies addressing the link between adult attachment and depressive symptoms, as assessed by self-report scales, in mostly nonclinical samples. The review shows that secure attachment is systematically related to a decreased prevalence of depression. In contrast, anxious attachment is consistently associated with an elevated prevalence of depression. Less consistent results are found for the relationship with avoidant attachment. Approximately half of the studies show positive associations between attachment avoidance and depression. Some studies showed that the two attachment styles are differentially related to different symptoms of depression, by examining associations between attachment anxiety and avoidance and specific symptoms of depression. Interestingly, anxious attachment generally seems to be related to interpersonal aspects of depression, while avoidant attachment is more strongly related to achievement-focused aspects of depression (Mikulincer & Shaver, 2007). As such, it seems to be important to further distinguish attachment anxiety and avoidance instead of investigating general insecure attachment representations.

As demonstrated above, the depression-attachment link was thoroughly investigated in adults. However, remarkably less research investigated this association between depressive symptoms and separate insecure attachment dimensions in children and adolescents. Nonetheless,



Muris, Meesters, van Melick, and Zwambag (2001) did find support for the relationship between depressive symptoms and both attachment anxiety and attachment avoidance, although associations with avoidant attachment are again less pronounced. In this project, we expect, in a sample of children as well as parents, a positive association between both anxious and avoidant attachment on the one hand, and depressive symptoms on the other hand.

### *The intergenerational similarity of attachment*

Research has convincingly demonstrated that attachment patterns are transmitted from one generation to the next. Bakermans-Kranenburg and van Ijzendoorn (1994-1995) found in a meta-analysis of studies using the Adult Attachment Interview and the Strange Situation Procedure that attachment is transmitted across generations (e.g., Fonagy, 1994). The intergenerational transmission of attachment could not only be found in infants (e.g. Fonagy, Steele, & Steele, 1991) but also in young school children and adolescents (Benoit & Parker, 1994; Hesse, 1999). Although a few studies failed to find a consistent association between adult attachment and attachment of the child (e.g., van Ijzendoorn, Kranenburg, Zwart-Woudstra, van Busschbach, & Lambermon, 1991), children of parents with an insecure history of attachment, generally seem to be more at risk for insecure attachment to their parents. As insecure attachment is also considered an important risk factor for the development of depression in both children and adults (see previous paragraph for an overview of study findings), the present project investigates whether the intergenerational similarity of insecure attachment is a likely candidate to explain the intergenerational similarity of depressive symptoms.

Empirically, few studies examined whether the intergenerational similarity of attachment can explain the intergenerational similarity of depression. In one of the few studies that did address this hypothesis, Besser and Priel (2005) found that an insecurely attached mother is more at risk for

depression. Moreover, maternal depression was associated with insecure attachment in the child, which in turn was related to depressive symptoms in the child. In contrast, Cummings, Schermerhorn, and Keller (2008) did not find evidence for the idea that mental attachment representations mediate the relationship between parental depression and internalizing problems in children. In sum, research is needed to further investigate the role of attachment as one of the main psychosocial processes in the intergenerational similarity of depression.

### *Depressogenic Personality*

The DSM-IV perspective on depression and depression symptoms entails a purely descriptive approach. A diagnosis of depression is made on the basis of quantitative cut-offs without taking into account etiological factors that predispose to depressive symptoms. It is also assumed that a diagnosis of depression, which represents an Axis-I diagnosis, is largely orthogonal to Axis-II, which defines disturbances in individuals' personality functioning. Luyten, Blatt, Van Houdenhove, and Corveleyn (2006) made a review of empirical research that calls into question those assumptions of the DSM approach. Somewhat contrary to this descriptive and atheoretical perspective on depression, during the past decades a number of theories of depression have emerged identifying theory-based and qualitatively different vulnerabilities to depression in individuals' personality functioning (Arieti & Bemporad, 1978; Beck, 1983; Blatt, 1974, 2004). Beck (1983), for instance, revised his theory of depression to include the role of two major personality dimensions, termed sociotropy and autonomy. The sociotropic individual is a socially dependent person. He or she is particularly sensitive to and afraid of rejection by others because he or she is dependent on others for safety and gratification. The autonomous individual tends to be assertive and directive, and is sensitive to being subjected to demands or restrictions, particularly those that interfere

with achieving goals. He or she derives gratification from directing his own activities and attaining meaningful goals (Beck, 1983; Bieling, Beck, & Brown, 2000).

Concepts similar to sociotropy and autonomy have been introduced by other investigators from diverse theoretical backgrounds. A review article of Blatt and Maroudas (1992) discussed the strong conceptual convergence between the two depressogenic personality dimensions identified by Beck (i.e., sociotropy and autonomy from a cognitive-behavioral perspective) and those distinguished from an interpersonal perspective (i.e., dominant other and dominant self, Arieti & Bemporad, 1978), an ethological attachment approach (i.e., anxiously attached and compulsive self-reliant, Bowlby, 1980), as well as from a psychoanalytical and cognitive developmental psychological approach (i.e., dependent and self-critical, Blatt, 1974, 2004, 2008). Although the concepts are not totally interchangeable, the main depressive themes concerning interpersonal and achievement needs are essentially the same.

There is an obvious theoretical (Beck, 1983) and empirical link (e.g., Beck, Robbins, Taylor, & Baker, 2001) between sociotropy, autonomy, and depression. According to Beck (1983), sociotropy and autonomy are specific and differential factors in the onset and course of major depression. The cognitive distortions of the *sociotropic type of depression* center around the irreversibility of loss and the sense of social undesirability. The following characteristics are typical for this sort of depression: seeking help, support and reassurance, a feeling of loneliness, concern about personal and social attributes, and a preoccupation with, and anxiety about, the loss of gratification. The onset of a sociotropic depression is often precipitated by the loss of a significant figure through death or rejection (Sibley & Overall, 2008). Individuals with an *autonomous type of depression* present themselves as relatively isolated from other people to maintain independence, they have a

tendency to reject help and to blame themselves for failure, they have a high degree of self-criticism, and a fairly unremitted depressed mood. Cognitive distortions center around themes of defeat and failure because of personal incompetence. An autonomous depression often takes place when one realizes that a specific goal cannot be achieved (Sibley & Overall, 2008).

Research indeed shows that both sociotropy and autonomy are positively associated with depression (Beck et al., 2001; Luyten, et al., 2007; Murphy & Bates, 1997). For instance, Beck, Taylor and Robbins (2003) found significant associations between both sociotropy, autonomy, and depressive symptoms in freshman college students beginning their first semester. Moreover, in a meta-analysis Nietzel and Harris (1990) found that sociotropy and autonomy explain independent variance in adolescents' depressive symptoms, with autonomy emerging as the strongest predictor. Similar findings were also obtained in studies with a younger population of early adolescents (ages 10-14) (e.g., Kuperminc, Blatt, & Leadbeater, 1997; Little & Garber, 2000). In this project, we expect, in a sample of children as well as parents, a positive association between both sociotropy and autonomy on the one hand, and depressive symptoms on the other hand.

#### *The intergenerational similarity of depressogenic personality*

In the present project, we further aim to investigate the level of intergenerational similarity in parents' and children's sociotropy and autonomy, thereby considering the possibility that the latter similarity would account at least partially for the intergenerational similarity in depressive symptoms per se. It was deemed important to consider this possibility because the observed intergenerational similarity in depressive symptoms may be the consequence of an underlying intergenerational similarity of dynamic personality processes that predispose both parents and children to depressive symptoms.

Few studies already provided evidence that personality vulnerabilities to depression are transmitted across generations. Studies that investigated the intergenerational transmission of sociotropy are scarce. Nonetheless, Besser and Priel (2005) found significant positive, moderate associations between dependency (sociotropy) of grandmothers and mothers, grandmothers and granddaughters, and mothers and granddaughters. Relatively more studies investigated the intergenerational transmission of autonomy. Parental self-criticism and perfectionism (which are conceptually similar to autonomy) have been found to predict self-criticism and perfectionism in children (Amitay, Mongrain, & Faza, 2008; Besser & Priel, 2005; Soenens, Elliot, et al., 2005; Vieth & Trull, 1999). However, to the best of our knowledge, no study to date examined whether this similarity of personality vulnerabilities accounts for the often observed intergenerational similarity in depressive symptoms. The present project will investigate this issue.

#### *Attachment and Depressogenic personality*

At the *conceptual* level anxious and avoidant attachment are specifically linked to sociotropy and autonomy, respectively (Blatt & Maroudas, 1992). Anxious attachment is characterized by a high demand for attention stemming from a hope that love will be provided, coupled with anxiety about a loss of gratification (Bowlby, 1980). This pattern of anxiety parallels Beck's description of sociotropy. In contrast, avoidant attachment develops in childhood in response to loss or an inadequate or unsympathetic (critical, rejecting) care of a parent. As a defense against feeling unloved, the child strives to be self-reliant and later withdraws from people. Avoidantly attached individuals show little appreciation for, or investment in, interpersonal relatedness. This seems similar to the autonomous person described by Beck (Blatt & Maroudas, 1992). Consistent with this conceptual analysis, *research* shows that anxious attachment is primarily associated with sociotropy

(dependency) and to a lesser extent with autonomy (self-criticism), whereas avoidant attachment is specifically related to autonomy (self-criticism) (Blatt & Homann, 1992; Murphy & Bates, 1997; Reis & Grenyer, 2002; Sibley, 2007; Sibley & Overall, 2007; Zuroff & Fitzpatrick, 1995).

Although specific relations between both sets of constructs have been shown, the direction of effects in these associations is less clear-cut. On the one hand, sociotropy and autonomy have been described as precursors of attachment anxiety and avoidance. Sibley and Overall (2008), for instance, argue that sociotropy and autonomy represent global regularities in relational responding that describe behavior across a range of different contexts, whereas attachment anxiety and avoidance fall lower in the network hierarchy and describe regularities within particular relationships. Mikulincer and Shaver (2003) on the other hand assume that, over time, representations summarizing regularities in relational responding with specific attachment figures could shape more global personality orientations. Similarly, theoretical models proposed in the literature on depression, for example, imply that insecure attachments to primary caregivers lead to sociotropic and autonomous depressogenic personality dimensions (Blatt & Homann, 1992; Thompson & Zuroff, 1999). According to these models, interactions with the primary caregivers (parents) act as the basis for interpersonal behavior and expectations in further attachment relationships that in turn shape children's personality. In sum, research is needed to untangle the direction of effects between attachment and depressogenic personality. The longitudinal design in parts of this project will allow to examine such longitudinal associations between children's attachment dimensions and depressogenic vulnerability to depression.

Furthermore, the present doctoral project aims to examine whether the intergenerational similarity of attachment could play a role in the

intergenerational similarity of depressogenic personality, or vice versa. Specifically, it can be expected that the transmission of anxiety would be related to the transmission of sociotropy, whereas the transmission of avoidance would be associated to the transmission of autonomy. These expectations are in line (a) with the conceptual convergence between anxious and avoidant attachment representations on the one hand and respectively sociotropy and autonomy on the other hand (Blatt & Maroudas, 1992), and (b) with recent research showing specific associations between these two sets of variables. To date, we are aware of only one study addressing the role of the intergenerational transmission of attachment in the intergenerational transmission of personality vulnerabilities to depression. Besser and Priel (2005) found that both attachment styles and depressogenic personality vulnerabilities (i.e., dependency and self-criticism) show significant intergenerational congruence. Moreover, the second generation's attachment dimensions and depressogenic vulnerabilities were found to mediate the association between first- and third-generation scores on attachment and vulnerability orientations.

In sum, this project addresses the hypothesis that the similarity of depressogenic personality and attachment play a role in the intergenerational similarity of depressive symptoms, and that the intergenerational similarities of depressogenic personality and attachment are dynamically linked to each other. These hypotheses are graphically displayed in Figure 1. A further aim of this project is to shed light on processes that may place people at risk for the development of insecure attachment representations and subsequent depressive symptoms, thereby addressing the role of parenting behaviors.

### *Parenting*

On the basis of attachment theory (Bowlby, 1980; van Ijzendoorn, 1995) and models of developmental psychopathology (Goodman & Gotlib,

1999), we can assume an important role for parenting processes in the development of insecure attachment representations and depression. Based on recent socialization models (e.g., Barber, Stolz, Olsen, & Maughan, 2005) and more general theories of personality development (e.g., self-determination theory, Deci & Ryan, 1985; 2000), three basic parenting dimensions have been distinguished: (1) parental responsiveness, (2) parental autonomy-support versus psychological control, and (3) regulation (sometimes also referred to as structure or behavioral control). In this project, two of the three parenting dimensions are considered primarily relevant for our research purposes, that is, parental responsiveness and parental autonomy-support versus psychological control.

Parental responsiveness refers to the parent's capacity to attune to their children's needs and to serve as a secure base when a child experiences discomfort or stress (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). A related construct that has often been grouped together with responsiveness is warmth. Warmth denotes the parents' tendency to interact with their children in a warm, affectionate, and involved fashion (Barber et al., 2005; Davidov & Grusec, 2006). In the current research, separate items on responsivity and warmth are comprised together in one parenting construct, further referred to as parental responsiveness. In contrast, parents with low scores on parental responsiveness are viewed as unavailable, distant, and cold.

Autonomy-supportive parents try to know and understand the perspective of their children. They try to avoid pressure, encourage initiative, provide choice whenever possible or provide a rationale when no choice is possible (Ryan, Deci, Grolnick, & LaGuardia, 2006). In contrast, autonomy-inhibiting or controlling parents pressure their children to act, think, and feel in particular ways. One intensively studied form of parental pressure is psychological control. Psychologically controlling parents are parents who



enforce their children to obey by using internally pressuring techniques that appeal to children's feelings of guilt, shame, and separation-anxiety. Some examples of these parental manipulative techniques are guilt induction, shaming, instilling anxiety, and conditional loving (Barber, 1996; Barber & Harmon, 2002; Soenens & Vansteenkiste, 2010). Psychological control seems to interfere with children's development of autonomy and leads to disruption of psychosocial functioning (Barber, 1996; Barber & Harmon, 2002). Although psychological control and autonomy-support are not perfectly opposite, both dimensions can be situated on a single underlying continuum ranging from autonomy-supportive to controlling parenting (Soenens, Vansteenkiste, & Sierens, 2009).

Theory and research suggest a role of parenting in the development of insecure attachment representations. To promote a secure attachment relationship, parents need to comfort and protect their children in times of stress (i.e., provide a safe haven; Bowlby, 1988), but also need to support autonomous action and exploration (i.e., provide a secure base from which the child can explore; Ainsworth, 1969). This distinction between the safe haven and secure base function is analogous to the distinction between the two fundamental parenting dimensions that are central in recent parenting research, respectively, responsiveness and autonomy-support. Although previous research typically focused on responsiveness as an important factor in attachment research, the importance of both responsiveness and autonomy-support has been acknowledged in a handful recent attachment studies (e.g., Whipple, Bernier, & Mageau, 2011).

Further, on the basis of attachment theory (Bowlby, 1988), a unique pattern of parenting correlates can be expected for each of the two attachment dimensions (i.e., anxiety and avoidance). Children who experience unresponsive or intrusive caregiving may have difficulty trusting that others

will be appropriately available for them, and therefore learn to be self-reliant and to avoid depending on others (Crowell & Treboux, 1995). As a consequence, avoidant attachment would be related to low parental responsiveness and low autonomy-support. Children high on attachment anxiety would not experience their caregivers as consistently low on warmth and support but would instead experience caregivers as inconsistent in providing responsiveness. Children may become fearful of abandonment due to the unpredictability in their parents' display of love and support (e.g., Hill, Fonagy, Safier, & Sargent, 2003). Further, anxious attachment is also thought to arise when care is intrusive because those experiences leave the child uncertain of his or her own worth and competence (negative self) (Bartholomew & Horowitz, 1991). In sum, anxious attachment would not necessarily relate to low maternal responsiveness, yet would relate to parenting low in autonomy-support.

Empirically, previous research found that maladaptive parenting styles predict disturbed attachment in children (Bosmans, Braet, Van Leeuwen, & Beyers, 2006; van IJzendoorn, 1995). More specifically, responsiveness showed a negative relationship with avoidant attachment and no or only a small relation with anxious attachment (Karavasillis, Doyle & Markiewicz, 2003; Kerns, Tomich, Aspelmeier & Contreras, 2000). Instead, autonomy-suppressing and controlling parenting are most consistently associated with children's and adolescents' perception of attachment anxiety (e.g., Güngör & Bornstein, 2010; Karavasilis et al., 2003). In this project, we will examine the role of parental responsiveness and autonomy-support versus psychological control as risk factors in the development of insecure attachment representations. We hypothesize that low parental autonomy-support would be related to attachment anxiety, whereas both low autonomy-support and low responsiveness would be related to attachment avoidance. Moreover, the

relevance of this process in the intergenerational similarity of depressive symptoms will be examined.

There is some indirect evidence for the idea that maladaptive parenting styles at least partially explain the transmission of depressive symptoms. Research shows that parents with depressive symptoms use more negative, controlling, punishing parenting behaviors, are less autonomy-supportive and responsive, and have more conflicts with their children (Gelfand & Teti, 1990; Goodman & Gotlib, 1999; Jacob & Johnson, 2001; Miller, Birnbaum, & Durbin, 1990). Such maladaptive parenting behaviors in turn would make the children more at risk for depressive symptoms (Bosmans, Braet, Beyers, Van Vlierberghe, Van Leeuwen, 2009; McCarty, McMahon, & Conduct Problems Preventions Research Group, 2003; Hammen et al., 2004). Parental psychological control has been shown to be a particularly strong predictor of children's and adolescents' internalizing problems (Barber & Harmon, 2002; Barber et al., 2005; Soenens, Luyckx, Vansteenkiste, Duriez, & Goossens, 2008; Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005). Research directly examining the role of parenting in the intergenerational similarity of depression is scarce. However, Brennan, Le Brocque, and Hammen (2003) found that low parental psychological control and high parental responsiveness (conceptualized here as high warmth and low overinvolvement) are protective factors in the intergenerational transmission of maternal depression. Moreover, Hammen and colleagues (2004) found that the relationship between maternal depression and youth depression is largely mediated through parenting quality (generally conceptualized as the child's perception of maternal hostility and psychological control). In this project, we aim to further examine the role of parenting, more specifically parental responsiveness and parental autonomy-support, in the intergenerational transmission of depressive symptoms.

## **Part 2: Emotion regulation as a mediator in the relationship between attachment and depressive symptoms in children and adolescents**

### *Emotion regulation*

Another central hypothesis in Bowlby's attachment theory (1969/1982, 1973) is that early interactions with the attachment figure form a critical context for the development of emotion regulation processes. The attachment system can actually be considered as an emotion regulation device. This device functions by searching physical and symbolical closeness to protective others. The sensitivity and responsiveness of the attachment figures determine the development of emotion regulation strategies. When an attachment figure is available and supportive, the child finds comfort in times of stress and learns that he or she can cope with pain, that emotions can be expressed without threatening the relationship and that difficulties can be overcome. As a consequence, Bowlby (1988) views secure attachment as a protective factor in the process of coping with emotional problems.

When an attachment figure is not or inconsistently available and supportive, the child develops maladaptive strategies of emotion regulation, and is more at risk for the development of emotional problems. However, although emotion regulation is one of the central aspects in Bowlby's attachment theory (1969/1982, 1973), few specific mechanisms were identified. The model of Shaver and Mikulincer (2002) describes in much greater detail how different attachment styles are related to different strategies of emotion regulation (Mikulincer et al., 2003). Conform the theory of Bowlby (1969/1982), it is assumed that secure attachment stimulates the development of adaptive emotion regulation processes. More specifically, secure-based emotion regulation strategies consist of seeking social support and problem solving, as the child knows that acknowledgement and expression of emotions results in responsiveness of the other (Mikulincer & Shaver, 2007).

Insecure attachment on the other hand, contributes to maladaptive emotion regulation strategies like hyperactivation or deactivation (Mikulincer & Shaver, 2007). Hyperactivation occurs mainly in people who score high on anxious attachment. These people often feel abandoned by others and, as a consequence, feel overwhelmed by negative emotions in times of distress. Their emotion regulation strategy consists of hypervigilant screening of the environment for threats and availability of the attachment figure. Deactivation occurs mainly in people who score high on the dimension of avoidant attachment. Because they learned that attachment behavior leads to rejection or anger instead of closeness or love, they suppress emotion-related thoughts, aim attention away from emotion-related action tendencies and mask expressions of emotion. Support of attachment figures will not be sought because of fear to be rejected (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007). This idea that anxious and avoidant attachment are associated with different emotion regulation strategies has been around for quite some time (e.g., Cassidy, 1994). Similar to the model of Mikulincer and Shaver, Cassidy (1994) noted that there is heightening of emotion (i.e., hyperactivation) in ambivalent dyads (i.e., anxious attachment) and minimization of emotion (i.e., deactivation) in avoidant dyads (i.e., avoidant attachment).

Further, the conceptualization of emotion regulation according to the model of Shaver & Mikulincer (2002) shows a strong link with the conceptualization of emotion regulation according to self-determination theory (SDT; Deci & Ryan, 1985, 2000). SDT assumes that there are three types of emotion regulation strategies, one of which would be adaptive (emotional integration) and two of which would be rather maladaptive (emotional dysregulation and suppressive regulation) (Roth, Assor, Niemiec, Ryan, & Deci, 2009; Ryan, Deci et al., 2006). Emotional integration is characterized by an

open attitude towards and deliberate, thorough exploration of inner experiences. Emotional dysregulation characterizes children who experience emotions but are not able to regulate them adequately. They tend to feel overwhelmed by their emotion and their emotions will be expressed in their behavior unintentionally. Suppressive regulation is defined as an attempt to avoid or minimize the experiences of negative emotions (Roth et al., 2009). Much like attachment theory, SDT assumes that the social environment, including relationships with parents, have an important influence on the development of emotion regulation strategies (Roth et al., 2009). The present project will investigate the emotion regulation model of attachment focusing on dysregulating and suppressing emotion regulation strategies as conceptualized by SDT.

Empirically, Mikulincer and Shaver (2007) made an extensive review of studies (self-report, experimental, observational) that addressed their model of emotion regulation (Mikulincer & Shaver, 2002). We briefly summarize the findings from this review that are most relevant to our study. People who score high on anxious attachment seem to experience very strong emotions in confrontation with stressful events and ruminate about their worries. Anxiously attached persons have a negative and pessimistic outlook on life events and do not trust their own abilities to cope with difficult situations. Anxious attachment is mainly related to emotion-focused emotion regulation strategies. This pattern of findings is consistent with the notion that anxious attachment is specifically predictive of hyperactivation or dysregulation of emotions. Avoidant attachment was found to relate to avoidant emotion regulation strategies, such as stress denial, diversion of attention, behavioral or cognitive disengagement, and repression. Avoidant attachment is also associated with weaker tendencies to seek support. Together, these results are consistent with the notion that avoidant attachment is specifically predictive of

deactivation or suppression of emotions. In this project, we expect (a) that anxious attachment would be specifically associated with dysregulation (hyperactivation) and (b) that avoidant attachment would be specifically related to suppression (deactivation).

Emotion regulation strategies would in turn mediate associations between attachment and depressive symptoms. Poor abilities of emotion regulation are indeed assumed to occur with most forms of psychopathology in children and adolescents and with depression in particular (Bradley, 2000; Cicchetti, Ackerman, & Izard, 1995). With few exceptions, research with children and adolescents demonstrates that depressed youngsters report less active emotion regulation strategies, such as: problem solving (Garber, Braafladt, & Weiss, 1995; Glyshaw, Cohen, & Towbes, 1989), cognitive restructuring and seeking social support (Garber et al., 1995). On the other hand, depressed children and adolescents more often suppress their emotions (Gross & John, 2003), and engage in cognitive avoidance, resigned acceptance, and emotional discharge (Ebata & Moos, 1991) compared to healthy adolescents. Moreover, depressive adolescents have lower expectations concerning their effectiveness to cope with negative emotions compared to adolescents in control groups (Garber et al., 1995). On the basis of these findings and on the basis of the model of Mikulincer and Shaver (2007), it seems plausible to assume that emotion regulation strategies will mediate between attachment and depressive symptoms. Only few studies examined the full integrated model of differential mediation (see Wei, Vogel, Ku, & Zakalik, 2005 for an exception). Yet, to our knowledge, none of these studies investigated the model in middle childhood children or adolescents. The present projects' specific hypotheses on emotion regulation are graphically displayed in Figure 2.

### **Summary of the empirical studies**

In this dissertation, two main research aims are pursued. A first aim is to investigate the role of several psychosocial processes (i.e., depressogenic personality, attachment and parenting) in the development and intergenerational similarity of depressive symptoms (Chapter 3, 4 and 5). Second, the current research will investigate emotion regulation as a possible mediator in the relationship between attachment and depressive symptoms in children and adolescents (Chapter 6 and 7). In advance, the project aims to develop and validate an attachment measurement that clearly distinguishes between attachment anxiety and avoidance in middle childhood children and early adolescents (chapter 2). See Table 1 for an overview of the empirical studies.



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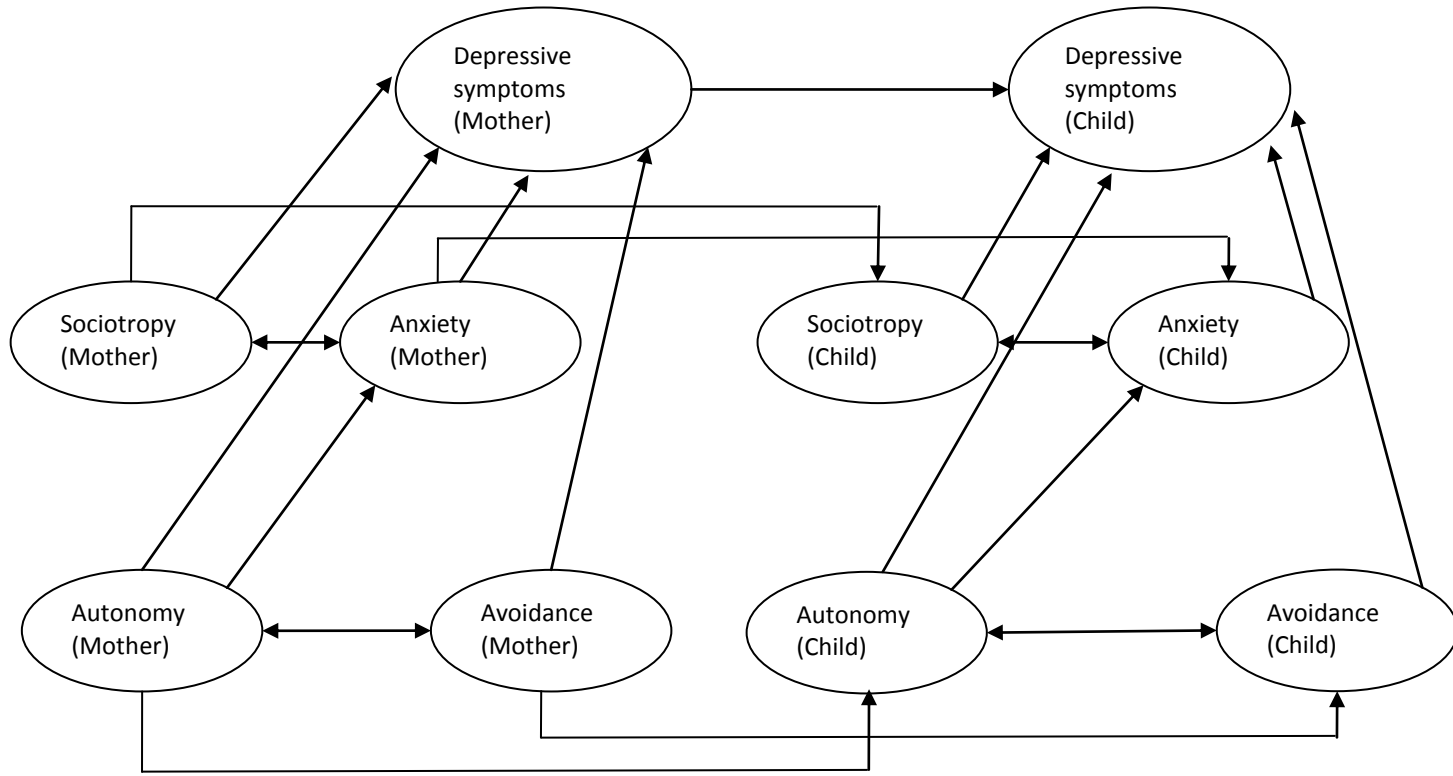
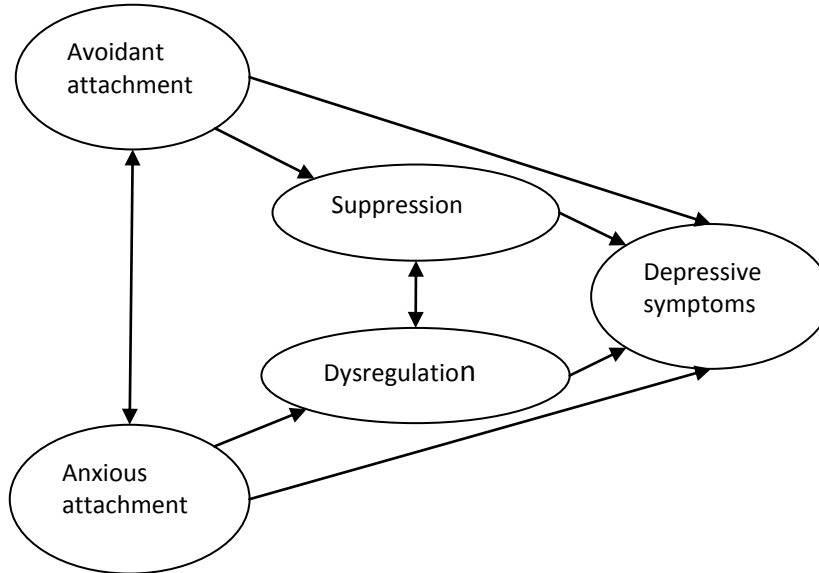


Figure 1. The hypothesized intergenerational similarity model



*Figure 2.* The hypothesized emotion regulation model of attachment

Table 1

*Overview of the empirical studies*

Chapter	Studies	Design	Mean age (range)	female	Child Questionnaires	Mother informant
2	Study 1 = 514	Cross-sectional	12.64 (10-14)	62%	ECR-RC, ASS, RQ, PACQ, CDI, ER Inventory	/
	Study 2 = 296	Cross-sectional	10.66 (8-13)	47%	ECR-RC, ASS, RQ, PACQ, CDI, ER Inventory	/
3	Study 3 = 303	Cross-sectional	12.00 (8-14)	53%	CDI, PSI-II, ERC-RC	BDI-II, PSI-II, ECR-R
4	Study 4 = 238	Cross-sectional	14.44 (11-20)	31%	CDI, YSR, CBCL, parenting, ECR-RC	BDI-II, parenting, ECR-R
5	Study 5 = 289	Longitudinal	12.51 (12-14)	66%	PSI-II, ECR-RC, CDI	/
6	Study 6 = 339	Cross-sectional	12.60 (12-14)	63%	ECR-RC, CDI, ER Inventory	/
	Study 7 = 746	Cross-sectional	12.00 (8-14)	59%	ECR-RC, CDI, ER Inventory, parenting,	/
7	Study 8 = 197	Cross-sectional	13.54 (11-16)	60%	ECR-RC, ER Inventory	/
	Study 9 = 310	Cross-sectional	14.26 (11-18)	59%	ECR-RC, ER Inventory, CDI, YSR	/

*Note.* ECR-R(c) = Experiences in Close Relationships Scale Revised (Child version); ASS = Attachment Security Scale; RQ = Relationship Questionnaire; PACQ = Preoccupied and Avoidance Coping Questionnaire; CDI = Child Depression Inventory; BDI-II = Beck Depression Inventory-II; ER Inventory = Emotion Regulation Inventory; PSI-II = Personal Style Inventory-II; CBCL = Child Behavior Checklist; YSR = Youth Self-report; parenting = a series of parenting questionnaires. Note that the sample of study 7 overlaps to some extent with the dataset of the cohort study (study 5). Nonetheless, even though we utilized part of the same database, both articles contain numerous important differences.



## Chapter 2

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### **An Adaptation of the Experiences in Close Relationships Scale-Revised for Use with Children and Adolescents<sup>1</sup>**

The investigation of attachment processes during middle childhood and early adolescence has been hampered by a relative lack of measures for this age group differentiating between two fundamental attachment dimensions, that is, anxiety and avoidance. The aim of this study is to develop and validate a child version of the Experiences in Close Relationships Scale-Revised (referred to as the ECR-RC), a self-report questionnaire measuring attachment anxiety and avoidance. Two studies were conducted to examine the internal structure (Study 1,  $N = 514$  and Study 2,  $N = 296$ ) and construct and predictive validity (Study 2) of the ECR-RC. The ECR-RC appears to be a promising instrument to measure the two attachment dimensions in middle childhood and early adolescence.

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<sup>1</sup> Brenning, K., Soenens, B., Braet, C., & Bosmans, G. (2011). An Adaptation of the Experiences in Close Relationships Scale-Revised for Use with Children and Adolescents. *Journal of Social and Personal Relationships*, 28, 1048-1072.

## Introduction

The quality of attachment relations is considered to be an important determinant of psychosocial development (Green & Goldwyn, 2002; Greenberg, 1999). Although attachment theory is a life-span theory (Ainsworth, 1989; Bowlby, 1969/1982, 1973, 1979), attachment research has mainly been conducted in infancy, early childhood (e.g., Ainsworth, Blehar, Waters, & Wall, 1978) or in the period of late adolescence and adulthood (e.g., Rholes, Simpson, Campbell, & Grich, 2001), at the expense of research in middle childhood and early adolescence. Moreover, the limited body of research on attachment during the latter age period typically relies on broad assessments of attachment security (versus insecurity) without distinguishing between two fundamental and qualitatively different dimensions of attachment that have been distinguished in early childhood and adulthood, that is, anxiety and avoidance. This state of affairs is partly due to the relative lack of instruments directly tapping into attachment anxiety and avoidance in middle childhood and early adolescence (Kerns, Tomich, Aspelmeier, & Contreras, 2000; Thompson & Raikes, 2003). Therefore, the aim of this study is to adapt and validate a version of the Experiences in Close Relationships Scale - Revised (ECR-R) scale, which is one of the most frequently used measures of attachment anxiety and avoidance in adults, for use with middle childhood children and early adolescents.

### *Attachment theory*

Bowlby's attachment theory (1969/1982, 1979) is one of the most prominent and well-established frameworks to conceptualize the relationship between parents and their children (Mikulincer, Shaver, & Pereg, 2003). An attachment style can be defined as a pattern of relational expectations, emotions, and behaviors that results from early experiences with caregivers

and that affects interpersonal behavior and development throughout the lifespan (Fraley & Shaver, 2000; Shaver & Mikulincer, 2002). Initial research on attachment in children as well as adults conceptualized attachment categorically, thereby distinguishing between secure, anxious, and avoidant attachment styles (Ainsworth et al., 1978; Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Although early attachment research already addressed the dimensions underlying these attachment categories (e.g., Ainsworth et al., 1978), recent research is characterized by a more explicit focus on the dimensions behind attachment quality. In this continuous-dimensional approach, it is assumed that individual differences in attachment can be most parsimoniously represented along two fundamental dimensions (e.g., Brennan, Clark, & Shaver, 1998), that is, attachment anxiety and attachment avoidance. Whereas attachment anxiety refers to preoccupation with social support, jealousy, fear and vigilance concerning abandonment and rejection, attachment avoidance involves avoidance of intimacy, discomfort with closeness, and self-reliance. By crossing these two dimensions, four attachment orientations can be distinguished: secure attachment (low on both dimensions), preoccupied attachment (high on anxiety and low on avoidance), dismissing-avoidant attachment (low on anxiety and high on avoidance), and fearful-avoidant attachment (high on both dimensions). Bartholomew and Horowitz (1991) argue that each attachment orientation is associated with a distinct pattern of personal and interpersonal adjustment. Whereas securely attached individuals have mostly warm interpersonal contacts and high levels of self-confidence, preoccupied individuals are lower in self-confidence and tend to display extreme emotional expressiveness in relationships. Individuals with a fearful avoidant orientation are rather low in self-confidence and tend to assume a subservient role in close relationships, whereas those with a

dismissing orientation are high on self-confidence, yet refrain from engaging in emotional expressiveness or self-disclosure (Bartholomew & Horowitz, 1991).

Research in samples of both young children and adults has shown that attachment styles and their underlying dimensions are meaningfully and differentially related to a range of aspects of psychosocial functioning, including social adjustment, well-being, self-worth, emotion regulation, and psychopathology (Mikulincer & Shaver, 2007). To validate the child version of the ECR-R developed in this study, we will focus on associations between the attachment dimensions and both strategies of emotion regulation and depressive symptoms, as these represent conceptually important and frequently studied outcomes of attachment.

Bowlby (1969/1982, 1973) postulated that early interactions with attachment figures form a critical context for the development of emotion regulation processes, which are in turn essential for psychosocial adjustment or, conversely, for the development of psychopathology. Shaver and Mikulincer (2002) have proposed a model describing in greater detail how the attachment dimensions of anxiety and avoidance are related to different strategies of emotion regulation. According to this model, anxious attachment would be mainly associated with hyperactivating strategies of emotion regulation, which consist of hypervigilant screening of the environment for threats and availability of the attachment figure (Mikulincer & Shaver, 2007). In contrast, attachment avoidance would be primarily related to the use of deactivating strategies of emotion regulation. Deactivation consists of suppressing emotion-related thoughts, aiming attention away from emotion-related action tendencies, and masking expressions of emotion.

The notion that anxious and avoidant attachment are associated with different emotion regulation strategies has been around for quite some time and would be applicable to both adults and younger children and adolescents.

For example, Cassidy (1994) already noted that there is a heightening of emotion (i.e., hyperactivation) in ambivalent (i.e., anxiously attached) children and minimization of emotion (i.e., deactivation) in avoidantly attached children. Cross-sectional and longitudinal studies, in both children and adults, have indeed found that attachment anxiety and avoidance are differentially associated with strategies of emotion regulation, in ways predicted by the model of Shaver and Mikulincer (e.g., Braungart & Stifter, 1991; Mikulincer & Shaver, 2007; Vogel & Wei, 2005).

The maladaptive emotion regulation processes associated with attachment anxiety and avoidance in turn increase the vulnerability for psychopathology and for depressive feelings in particular. Cross-sectional and longitudinal studies, with adults (Mikulincer & Shaver, 2007) as well as with children and adolescents (e.g., Brumariu & Kerns, 2010), support a relationship between both attachment anxiety and attachment avoidance and depressive symptoms, although associations with avoidant attachment are typically less pronounced.

#### *Continuity And Change In Attachment During Middle Childhood And Early Adolescence*

During middle childhood and early adolescence, attachment-related processes are quite dynamic and important. At the surface level, attachment relationships seem to change quite a bit compared to early childhood. Children at this age have an increasing number of social roles and begin to spend more time with peers (Fraleley & Davis, 1997). Amidst these social changes, the original main attachment figures (mostly the parents) typically retain their importance, yet there is a changing balance between attachment and exploratory behavior (Allen, 2008). Compared to early childhood, children in middle childhood and early adolescence rely relatively less on their parents for emotional support and increasingly use their parents as a secure base from

which to explore the broader interpersonal environment (including peer groups). Also, whereas physical closeness is very important in early childhood, psychological (instead of physical) availability becomes relatively more important during middle childhood and early adolescence (Bowlby, 1969/1982; Kerns et al., 2000).

In spite of these changes in attachment relationships, it has also been argued and found that there is a lot of continuity between early attachment patterns and attachment during middle childhood and beyond. Bowlby (1973), for instance, endorses a continuous view on attachment by arguing that attachment patterns, built on experiences within one's family of origin during early childhood, are fairly stable from infancy to adulthood. Based on this argument, Fraley (2002) more recently proposed a prototype perspective on attachment, which holds that representations of early attachment experiences are retained over time and continue to shape interpersonal dynamics throughout the life span. Research using both interviews and self-report measures is increasingly providing support for this prototype hypothesis (e.g., Crawford et al., 2006; Waters, Hamilton, & Weinfield, 2000).

Specifically with regard to the distinction between anxiety and avoidance, it has been argued that anxiety and avoidance represent fundamental and essential features of the quality of attachment relationships that are vital and active throughout the lifespan (Shaver & Mikulincer, 2007). In support of this lifespan perspective on attachment, Ainsworth's initial research showed the validity of distinguishing between anxious-avoidant and anxious-ambivalent attachment in infancy, adolescence and adulthood (Ainsworth, Blehar, Waters, & Wall, 1978). This lifespan perspective on anxiety and avoidance has also been adopted by scholars from object-relational thought. Blatt and colleagues (e.g., Blatt & Levy, 2003), for instance, argue that attachment anxiety and avoidance represent deviations from two fundamental

developmental lines characterizing human development across the lifespan, that is, interpersonal relatedness (i.e., developing trusting and mutual relationships) and self-definition (i.e., developing a clear sense of who one is). Whereas attachment anxiety involves a lack of trust in other people's availability and, as such, mainly reflects impairments in the relatedness developmental line, attachment avoidance involves an excessive emphasis on self-reliance and individuality and, as such, represents a derivative way of dealing with the developmental task of self-definition. Anxiety and avoidance are thus viewed as impairments in two fundamental developmental lines and would therefore affect individuals' well-being throughout the lifespan.

In sum, although at least some aspects of children's attachment relationships change across time, attachment relationships involve a number of functions and dynamics that are quite fundamental and that remain vital and active throughout the lifespan. Specifically, anxiety and avoidance are considered fundamental orientations and dynamics that characterize the quality of attachment relationships throughout the lifespan. Our goal was to assess these relatively more fundamental features of attachment in middle childhood and early adolescence rather than surface-level features and manifestations that are specifically characteristic of attachment during this life phase. Such an assessment is, in our view, important and useful for future research addressing continuity and change in the fundamental attachment dynamics of anxiety and avoidance. Because the ECR-R represents a measure tapping into anxiety and avoidance in a way that is not bound to specific developmental periods or relationships, it was deemed an appropriate measure for our research goals.

*Measurement of Attachment in Middle Childhood and Early  
Adolescence*

Although a number of measures have been developed to assess aspects of attachment in middle childhood and early adolescence, there is a relative dearth of adequate instruments to specifically measure attachment anxiety and avoidance in this age period (Dwyer, 2005). The most prominent measures available to assess attachment security or insecurity in middle childhood and early adolescence are (a) the Attachment Security Scale (ASS; Kerns, Klepac, & Cole, 1996), (b) the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), and (c) the Preoccupied and Avoidance Coping Questionnaire (PACQ; Finnegan, Hodges, & Perry, 1996). The Attachment Security Scale assesses children's perceptions of security in specific parent-child relationships. However, this questionnaire only provides a unidimensional assessment of attachment without differentiating between the dimensions of anxiety and avoidance. The Relationship Questionnaire, which has been adapted for use in middle to late childhood by Roelofs, Meesters, ter Huurne, Bamelis, and Muris (2006), is a vignette-based measure tapping into the four attachment styles defined by attachment anxiety and avoidance. A limitation of this questionnaire is that it consists of responses to single items, so that the internal consistency of the obtained scores cannot be determined. Apart from this psychometric argument, the Relationship Questionnaire does not directly tap into the dimensions underlying the four attachment styles. The Preoccupied and Avoidance Coping Questionnaire captures children's preoccupied (over-dependency on the attachment figure) and avoidant (denial of distress and affection in relation to the attachment figure) styles of coping to attachment-related experiences. One problem with this questionnaire is that its items have a rather age-specific content (Karavasilis, Doyle, & Markiewicz, 2003; Kerns et al., 2000). As a consequence, this questionnaire cannot be used



with adolescents, which hampers the usefulness of the PACQ in longitudinal research on the development of attachment from middle childhood to adolescence. Another problem with the PACQ is that it taps into two specific attachment styles without providing a direct assessment of the broader attachment dimensions underlying the attachment styles, that is, anxiety and avoidance. Herein we argue that many of the limitations associated with these measures could be overcome with the Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller, & Brennan, 2000).

### *The Experiences in Close Relationships Scale*

The ECR was originally developed by Brennan et al. (1998) on the basis of a large-scale factor-analysis of virtually all self-report adult romantic attachment measures at that time. A principal components analysis of more than 60 subscales produced two major factors that could be clearly interpreted as attachment anxiety and avoidance. Subsequently, two 18-item scales were constructed by selecting items with the highest absolute-value correlations with one of the two higher-order factors. Subsequently, Fraley et al. (2000) developed the ECR-R to further improve the psychometric properties of the ECR. They re-analyzed the complete pool of 323 items collected by Brennan et al. (1998) using a combination of classical psychometric techniques, such as factor analysis, and item response theory analysis (IRT). This innovative combination of techniques was used to overcome limitations of classical test theory (see Fraley et al., 2000 for a review) and to create scales that contain a substantially higher degree of information than the original ECR scales, without increasing the number of scale items. For each scale, 18 items were chosen with the highest discrimination values. Although there is a substantial overlap in items between the ECR and the ECR-R, the ECR-R differs from the ECR in that its items' discrimination values are more evenly distributed across the entire trait ranges of anxiety and avoidance. More specifically, Fraley et al. (2000)

demonstrated that the ECR-R provided more precise estimates of latent attachment at both low and high ends of the anxiety and avoidance continua. Because the ECR-R is considered to have stronger psychometric properties compared to the ECR, we chose to work with this questionnaire in the current research.

The ECR-R is one of the best validated and most frequently used self-report measures of adult romantic attachment dimensions currently available (Sibley, Fischer, & Liu, 2005). In samples of adolescents and adults, it has been shown that the ECR-R has a stable two-factor structure representing attachment-related anxiety and avoidance, and that both subscales show high internal consistency (e.g., Sibley & Liu, 2004; Sibley et al., 2005). Further, the construct validity of the ECR-R was evidenced by correlational findings supporting theoretically expected associations between the ECR-R and other attachment measures such as the Relationship Questionnaire (e.g., Dewitte, De Houwer, & Buysse, 2008). The predictive validity of the ECR-R was supported by theoretically plausible associations between the attachment dimensions and assessments of both depressive symptoms and strategies of emotion regulation (e.g., Wei, Vogel, Ku, & Zakalik, 2005).

### *The Present studies*

The aim of this research is to evaluate the validity and reliability of an age-appropriate version of the ECR-R for use with middle childhood children and early adolescents, which will be referred to as the ECR-RC. Whereas the ECR-R was originally developed to measure self-report of romantic attachment anxiety and avoidance, it has been applied to other types of relationships (e.g., people with whom one feels close, Lo et al., 2009). For the purpose of this study we applied the questionnaire to the parent-child relationship. This approach of applying a theory-based measure to the parent-child context, rather than using a measure developed specifically for the assessment of

parent-child relationships, can be considered a top down approach. An advantage of such an approach is that it allows researchers to examine consistency of attachment dynamics across relationships. A problem with the approach of using a measure that was designed specifically for the parent-child relationship would be that it becomes more difficult to interpret consistency in attachment between relationships. For instance, when comparing attachment scores from a measure specifically developed for parent-child relationships and scores from a measure specifically developed for romantic relationships, the differences between the measures can be driven either by the different type of relationships or by the different type of items used to measure attachment in the two measures. The advantage of the ECR-R is that it is a generic measure of attachment, the items of which can be applied to different types of relationships, thus yielding a fair and balanced comparison of scores between different types of relationships.

A first specific aim of the current study is to examine the internal structure of the ECR-RC in a sample of children and early adolescents between 8 and 14 years of age. We conduct exploratory and confirmatory factor analyses on the ECR-RC in two independent samples (Study 1 and Study 2) and we expect a two-factor solution representing attachment anxiety and avoidance. A second aim is to examine the construct validity of the ECR-RC (Study 2) by relating it to the other measures of attachment available in the literature on middle childhood and early adolescence. Although there is no single attachment scale in middle childhood that can be considered as a gold standard, we believe important information about the meaning and validity of the ECR-RC can be derived from its nomological network of associations with the alternative attachment measurements. We expect both the ECR-RC anxiety and avoidance dimensions to relate negatively to attachment security as measured with the Attachment Security Scale and with the secure attachment

vignette of the Relationship Questionnaire. We further expect that both ECR-RC dimensions will relate positively to the fearful-avoidant vignette of the Relationship Questionnaire, as the latter represents a combination of high anxiety and high avoidance. We also expect a number of differential associations, with the ECR-RC anxiety scale being particularly strongly related to preoccupied attachment (as measured by both the Relationship Questionnaire and the PACQ) and with the ECR-RC avoidant scale being specifically related to the dismissing-avoidant vignette of the Relationship Questionnaire and with the avoidant coping scale from the PACQ<sup>2</sup>. Third, in Study 2 we also aimed to examine the predictive validity of the child version of the ECR-R and we hypothesize that anxious attachment will show a positive association with depressive symptoms and hyperactivating emotion regulation strategies, while avoidant attachment will show a positive relationship with depressive symptoms and deactivating emotion regulation strategies.

## **Study 1**

### *Method*

#### *Participants and Procedure*

Participants were 514 children (196 boys; 317 girls; 1 participant who failed to denote his/her gender) with a mean age of 12.64 years ( $SD = 1.14$ ; range = 10 to 14 years). Participants were from three elementary and three secondary schools. All families had a middle-class background. Regarding level of education, 41.2% of the children in the secondary schools were following

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<sup>2</sup> The Inventory of Parent and Peer Attachment (IPPA) would be a useful questionnaire to further investigate the psychometric properties of the ECR-RC. The IPPA (Armsden & Greenberg, 1987) is not designed to differentiate between attachment avoidance and anxiety, but instead taps into a continuum of secure versus insecure attachment. We figured that the IPPA is largely redundant with the ASS in terms of what they intend to measure and in terms of empirical correspondence. For this, reason, we included only one of these scales in our questionnaire.

the academic track (i.e., are preparing for college or university studies), whereas the remaining participants were preparing for technical proficiencies. In terms of family structure, 75.5% of the participants came from intact families whereas the remaining participants were from divorced families or families where one of the parents has deceased.

Ethical approval for this study was granted by the organizing university's Institutional Review Board (IRB). A letter was sent to the direction and teachers of the schools and to the parents of the children explaining the nature of the study and asking parents' permission to have their children participate. We used passive parental consent instead of active parental consent in order to maximize the participation rate. Under passive consent, parents return the form only if they do not wish their child to participate. The students themselves were also provided with a passive consent form. Of the possible participants, 514 children had parental permission and were themselves willing to participate, that is, a response rate of 80.82%. The participating children completed the questionnaires during class periods and in the presence of a research assistant who provided some explanation on the questionnaire format and items. Participation in the study was voluntary and anonymity was guaranteed.

### *Measure*

*The Experiences in Close Relationships Scale-Revised Child version (ECR-RC)*. A committee of researchers familiar with research in middle childhood simplified the items of the ECR-R so as to better reflect the developmental and reading level of middle childhood and early adolescent children. The original ECR-R items (e.g., "I feel comfortable sharing my private thoughts and feelings with my partner" and "I don't feel comfortable opening up to romantic partners") were modified to be more comprehensible for children ("I find it easy to tell my mother what I think and how I feel" and "It's not easy for me to

tell my mother a lot about myself”, respectively) by simplification of item wording, removal of double negatives, and by slightly changing the content to be more relevant for children and for the parent-child relationship in particular. This adapted version of the questionnaire was presented to a focus group of middle childhood children. Children indicated that they understood the large majority of items and made a few suggestions to improve the clarity and meaning of some items. Further corrections were made on the basis of this focus group and the resulting version of the questionnaire was used in this study (see Table 1 for the items) The 36 items are rated on a 7-point scale ranging from “1 = strongly disagree” to “7 = strongly agree” with a neutral midpoint (“4 = agree/disagree”). In this study, participants were asked to rate the items twice, once for their mother and once for their father. The following instructions were given to the participants: “Below are a number of statements about your mother/father. Please indicate to which degree you agree with these statements, thereby picturing your mother/father as vividly as possible.” Information about the internal structure of the child version of the ECR-R is provided in the Results section.

## *Results*

### *Internal Structure of the ECR-RC*

The internal structure of the ECR-RC was examined with exploratory and confirmatory factor analyses. First, a principal axis factor analysis (i.e., exploratory factor analysis) of the 36-item scale was conducted for maternal and paternal ratings separately. Although in both solutions six factors emerged with an eigenvalue larger than one (i.e., 12.30, 3.67, 1.60, 1.41, 1.16, and 1.10 for mothers; 14.49, 3.79, 1.55, 1.32, 1.10, and 1.03 for fathers), the scree-plot indicated a clear elbow after the first two factors in both solutions, explaining 44.36% and 50.76% of the variance for maternal and paternal ratings, respectively. The factors explained approximately half of the variance in

attachment, which is similar to the percentage of explained variance in previous research with the ECR-R (e.g., Sibley & Liu, 2004). The percentage explained variance decreased steeply after the second component (i.e., 34.17, 10.19, 4.45, 3.91, 3.22, 3.04 for mother factor 1 to 6 respectively; 40.25, 10.52, 4.30, 3.67, 3.07, 2.86 for father factor 1 to 6 respectively), indicating that, although additional components may still add to the percentage of explained variance, a solution with more than 2 components may result in a relatively less parsimonious structure. In sum, in line with other studies (e.g., Sibley et al., 2005), our findings show that the first two factors capture a large deal of substantive variance while at the same time yielding a parsimonious solution. Given that we also anticipated a two-factor solution theoretically, two factors were extracted. The factor loadings obtained after oblique rotation (PROMAX) are provided in Table 1. The first factor is mainly defined by items assessing attachment anxiety. Of the 18 original anxiety-items, 17 had a loading  $> .30$  on this factor in both the maternal and paternal solutions. The second factor is mainly defined by items assessing attachment avoidance. In the maternal solution, all of the original 18 avoidance-items had a loading  $> .30$  on this factor. In the paternal solution, 17 items had loadings of  $.30$  or higher. In the maternal solution, one item (item 19) loaded on the unintended factor and one item (item 35) had a cross-loading. In the paternal solution, two items (item 6 and 9) did not have a substantial loading on either factor.

Next, a confirmatory factor analysis (CFA) was performed following the exact same procedures used by Sibley et al. (2005) who examined the factor structure of the ECR-R in young adults. Like in the Sibley et al. (2005) study, items assessing anxiety and avoidance were each parceled into six groups of three randomly selected items. Parceling is used when a scale contains diverse item content, including some that is related to the construct of interest plus additional nuances that make some items more highly intercorrelated than

other items. Our choice for a parceling approach above an item-level CFA is informed by the current studies' sample sizes, which are not large enough to conduct an item-level CFA (Study 1,  $N = 514$  and Study 2,  $N = 296$ ). The number of parameters that has to be estimated in relation to the sample size would be out of proportion. According to Kline (2005), a desirable goal is to have the ratio of the number of cases to the number of free parameters be 20:1 or 10:1. For the current study, this would result in a minimum sample size of 770 participants.

Structural Equation Modeling (SEM) with latent variables was conducted using LISREL 8.7 (Jöreskog & Sörbom, 1996). As suggested by Hu and Bentler (1999), we used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) as goodness of fit indices. Combined cutoff values of 0.95 for CFI and 0.06 for RMSEA indicate good fit. The hypothesized two-factor solution in which six parcels assessing anxiety loaded on one latent factor (all loadings  $\geq .62$ ,  $ps < .001$ , mean loading = .79 for mothers; all loadings  $\geq .67$ ,  $ps < .001$ , mean loading = .81 for fathers) and the six parcels assessing avoidance loaded on a second latent factor (all loadings  $\geq .77$ ,  $ps < .001$ , mean loading = .82 for mothers; all loadings  $\geq .83$ ,  $ps < .001$ , mean loading = .85 for fathers) provided adequate fit to the data,  $\chi^2(53, n = 506) = 120.82$ , CFI = .99, RMSEA = .05 and  $\chi^2(53, n = 496) = 169.25$ , CFI = .99, RMSEA = .07 for mothers and fathers respectively. An alternative single-factor solution in which parcels assessing anxiety and avoidance loaded on a single latent factor was also estimated,  $\chi^2(54, n = 506) = 1439.49$ , CFI = .85, RMSEA = .23 for mothers and  $\chi^2(54, n = 496) = 1490.41$ , CFI = .87, RMSEA = .23 for the father-child relationship. This model provided a significantly poorer fit than the hypothesized two-factor solution, ( $\Delta\text{SBS}\chi(1) = 154.56$ ,  $p < .001$  for mothers;  $\Delta\text{SBS}\chi(1) = 205.75$ ,  $p < .001$  for fathers), thus supporting the distinction between attachment anxiety and avoidance in this study. We also examined



whether the factor structure would be similar for boys and girls. A multigroup analysis was conducted comparing a constrained model (in which the loadings were set to be invariant across boys and girls) with an unconstrained model (in which these parameters were freely estimated across gender). No significant differences were found between the factor structure for boys and the structure for girls ( $\Delta\text{SBS-}\chi^2(12) = 14.72, p > 0.05$ ).

Given the evidence obtained here for a distinction between attachment anxiety and avoidance, scale scores were computed for both constructs by averaging the 18 items intended to measure each construct. All item-total correlations were higher than .30, except for one anxiety item (Item 9,  $r = .18$  for mother and  $r = .19$  for father) and two avoidance items (Item 6,  $r = .24$  for mother and  $r = .29$  for father; Item 28,  $r = .28$  for mother). Cronbach's alphas for attachment anxiety were .89 and .92 for maternal and paternal ratings, respectively. For avoidance, Cronbach's alphas were .93 and .94 for maternal and paternal ratings, respectively.

The correlation between anxious and avoidant attachment was significantly positive ( $r = .56$  for mother-child attachment;  $r = .61$  for father-child attachment), which is in line with previous research using the ECR (e.g., Conradi, Gerlsma, van Duijn, & de Jonge, 2006) and the ECR-R (e.g., Sibley et al., 2005). The mean scores of the anxious subscale were 2.20 ( $SD = 0.96$ ) and 2.25 ( $SD = 1.06$ ) for maternal and paternal ratings, respectively. The mean scores of the avoidant scale were 2.81 ( $SD = 1.16$ ) and 3.07 ( $SD = 1.34$ ) for maternal and paternal ratings, respectively. Finally, both anxiety and avoidance as reported concerning the mother-child relationship correlated positively with anxiety (.62,  $p < .001$ ) and avoidance (.61,  $p < .001$ ) as reported regarding the father-child relationship.

In sum, using exploratory and confirmatory factor analysis we obtained evidence for a two-factor structure in the ECR-RC, representing attachment

anxiety and attachment avoidance. In both the maternal and paternal ratings, the scales for anxiety and avoidance showed high internal consistency.

## Study 2

In Study 2 we aimed to replicate the two-factor structure of the ECR-RC in an independent sample with a somewhat broader age range (i.e., 8 to 13 years of age). In addition, construct and predictive validity of the ECR-RC scales were examined by relating the ECR-RC scales to other measures of attachment and to measures of emotion regulation and depressive symptoms. Because we included an elaborate battery of measures Study 2 focused only on the mother-child relationship. This decision was deemed justified by the strong correspondence between results obtained with the maternal and paternal ratings in Study 1.

### *Method*

#### *Participants and Procedure*

Participants were 296 children (156 boys; 138 girls; 2 participants who failed to denote their gender) with a mean age of 10.66 years ( $SD = 0.92$ ; range = 8 to 13 years) from nine elementary schools. All families had a middle-class background. In terms of family structure, 79.9% of the participants came from intact families whereas the remaining participants were from divorced families or families where one of the parents has deceased.

As in Study 1, ethical approval for this study was granted by the organizing university's IRB and parents' and children's permissions were obtained using passive consent forms. Of the possible participants, 80% voluntarily and anonymously completed a battery of questionnaires during class periods and in the presence of a research assistant.

#### *Measures*

*ECR-RC.* As in Study 1, participants filled out the ECR-RC to assess the attachment dimensions. In this study, participants were asked to rate the items for their mother only. Information about the internal structure and psychometric properties of the child version of the ECR-R is provided in the Results section.

*The Attachment Security Scale (ASS; Kerns et al., 1996; Dutch translation by Verschueren & Marcoen, 2002).* The ASS is a 15-item measure of felt attachment security in specific parent-child relationships. Participants are asked to choose between one of two response options and, next, to indicate their level of agreement with that option (e.g., “Some kids need their mothers for a lot of things BUT other kids go to their mom when upset”). The ASS has good internal consistency, short-term test-retest reliability, and good construct and discriminant validity (Kerns et al., 1996). In this study, Cronbach’s alpha for the attachment security scale was .76.

*Preoccupied and Avoidant Coping Questionnaire (PACQ; Finnegan et al., 1996).* The PACQ taps into children’s preoccupied and avoidant coping styles within close relationships. The preoccupied scale consists of items indicating that a child would be highly distressed if the parent was not available (e.g., “When you come back in the movie, it is so dark you can’t find your mother. Some kids would calmly look for their mother and not be too worried, but other kids would look for their mother and would be very upset until they found her. Which is more like you?”). Items on the avoidance scale indicate that the child would cope without relying on the parent (e.g., “One day you have a problem with a friend at school. When you get home, your mother can tell you are upset and starts talking to you about it. Some kids would feel comfortable talking to their mother about their feelings and problems, but other kids would just want their mothers to leave them alone. Which is more like you?”). For this study, a shortened version of the PACQ was used which

consists of 20 items selected from the original 36-item form on the basis of the highest item-total correlations (Karavasilis et al., 2003). Evidence for scale reliability and validity of this shortened version was provided by Yunger, Corby, and Perry (2005). In this study, Cronbach's alpha was .78 for both preoccupied and avoidant coping.

*Relationship Questionnaire (Roelofs et al., 2006).* For this study, children completed the Relationship Questionnaire for Children (RQ-C), which is an age-downward version of the widely used adult measure (RQ; Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994). This self-report measure consists of 4 paragraphs, each describing a different attachment style (RQ fearful avoidance, RQ dismissing avoidance, RQ secure, and RQ preoccupied). Participants are asked to indicate how well each paragraph applies to their relationship with their primary attachment figure, using a 7-point scale varying from 'not at all' to 'very much'. There is evidence for the reliability and validity of the RQ-C in samples of children (Roelofs et al., 2006; Roelofs, Meesters, & Muris, 2008).

*The Children's Depression Inventory (CDI; Kovacs, 1985; Dutch translation by Timbremont & Braet, 2002).* The CDI is an adaptation of the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961) and is a commonly used self-report measure of depressive symptoms in children aged from 7 to 17 years of age. The scale has 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. Respondents are asked to choose between one of three responses per item that best describes them (e.g., "I feel like crying every day"). Acceptable levels of internal consistency, test-retest reliability, and validity have been established (e.g., Saylor, Finch, Spirito, & Bennett, 1984). In the current study, Cronbach's alpha of the CDI was .88.

*The Children's Sadness Management Scale (CSMS; Zeman, Shipman, & Penza-Clyve, 2001)*. The CSMS consists of 12 items that tap into three dimensions of sadness management: (a) inhibition (4 items), which refers to the deactivation of sadness expression (e.g., "I get sad inside but don't show it"), (b) dysregulated expression (3 items), defined as expressing sadness in nonconstructive, hyperactivating ways (e.g., "I whine/fuss about what's making me sad"), and (c) emotion regulation coping (5 items), which involves attempts to actively cope with sadness experiences, for instance, through the use of strategies such as behavioral distraction (e.g., "When I'm sad, I do something totally different until I calm down"). In this study, we only used the scales for inhibition and dysregulated expression, because these emotion regulation strategies are most theoretically relevant for our research purpose. Research has shown moderate internal consistency for the three subscales and for the dysregulation scale in particular (e.g., Shipman, Zeman, Penza, & Champion, 2000). To increase the reliability of the latter scale, we added two additional items to the scale ('I can't forget my sad feelings' and 'I have little control over my sad feelings'). Construct validity has been established in relation to self- and other-report measures of sadness regulation and children's psychological and social functioning (Zeman et al., 2001). In this study, we considered the inhibition scale as a measure of deactivation of emotions and we considered the dysregulated expression scale as a measure of hyperactivation. Cronbach alpha was .55 for dysregulation and .71 for inhibition.<sup>3</sup>

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<sup>3</sup> As the internal consistency of the Dysregulation scale was only borderline acceptable, the possibility exists that the relationships obtained with this scale are less reliable. Therefore, we repeated our analyses using factor scores for Dysregulation, which at least somewhat reduces the impact of error variance. The results of the analyses with the use of factor scores were virtually the same as with the unweighted mean score for dysregulation. Again, a significant and unique effect of attachment anxiety on dysregulation was obtained ( $\beta = .24, p < .001$ ).

## Results

### *Internal Structure and Psychometrics of the ECR-RC*

As in Study 1, the internal structure of the ECR-RC was examined with a combination of exploratory and confirmatory factor analyses. A principal components factor analysis of the 36-item scale was conducted. Although ten factors emerged with an eigenvalue larger than one (i.e., 8.31, 2.69, 1.98, 1.67, 1.42, 1.34, 1.21, 1.14, 1.10, and 1.02), the scree-plot indicated an elbow after the first two factors, explaining 30.56% of the variance. Similar to study 1, but now in a sample with a younger and broader age range, the factor structure could be clearly interpreted in terms of the distinction between anxiety and avoidance.

A confirmatory factor analysis (CFA) was performed following the exact same procedures as in Study 1. The hypothesized two-factor solution in which the six parcels assessing anxiety load on one latent factor (all loadings  $\geq .53$ ,  $ps < .001$ , mean loading = .70) and the six parcels assessing avoidance load on a second latent factor (all loadings  $\geq .55$ ,  $ps < .001$ , mean loading = .71) provided an excellent fit to the data,  $\chi^2(53, n = 291) = 109.73$ , CFI = .98, RMSEA = .06. An alternative single-factor solution in which parcels assessing anxiety and avoidance loaded on a single latent factor was also estimated,  $\chi^2(54, n = 291) = 458.00$ , CFI = .88, RMSEA = .16. This model provided a significantly poorer fit than the hypothesized two-factor solution, ( $\Delta\text{SBS}\chi(1) = 129.85$ ,  $p < .001$ ), thus supporting the distinction between attachment anxiety and avoidance.

Using multigroup analyses we also examined whether the factor structure would be similar for boys and girls and for younger and older children. No significant differences were found between the factor structure for boys and the structure for girls ( $\Delta\text{SBS}\text{-}\chi^2(12) = 14.92$ ,  $p > 0.05$ ). A second multigroup analysis was conducted to examine whether children's age moderated the pattern of factor loadings comparing younger (8-11 years) to

older children (11-13 years). Because the median age was 11 years, we used a cut-off of 11 years to split the sample into two age groups. No significant differences were found between the factor structure for younger children and the structure for older adolescents ( $\Delta\text{SBS-}\chi^2(12) = 15.05, p > 0.05$ ).

When scale scores were computed for attachment anxiety and attachment avoidance, all item-total correlations were higher than .30, except for one anxiety item (Item 9,  $r = .06$ ) and three avoidance items (Item 12,  $r = .29$ ; Item 18,  $r = .19$ ; Item 28,  $r = .27$ ). Cronbach's alpha for attachment anxiety was .83 and Cronbach's alpha for avoidance was .85. The correlation between anxious and avoidant attachment was significantly positive,  $r = .55, p < .001$ . The mean scores of the subscales were 2.34 ( $SD = 0.89$ ) and 2.66 ( $SD = 0.97$ ) for anxious and avoidant attachment, respectively.

Further, preliminary analyses were conducted to examine differences in attachment anxiety and avoidance in terms of age, gender, and family structure. A multivariate analysis of variance was performed in which gender and family structure were entered as fixed factors and age was entered as a covariate for both attachment anxiety and attachment avoidance. No significant multivariate effects were obtained for age (Wilk's Lambda = .99;  $F(2,255) = 1.46, p > .05$ ), gender (Wilk's Lambda = .99;  $F(2,255) = 1.68, p > .05$ ), nor family status (Wilk's Lambda = .98;  $F(4,510) = 1.43, p > .05$ ).

### *Construct Validity*

Raw correlations between the ECR-RC scales and the other attachment scales are provided in Table 2. To examine the unique associations of the ECR-RC dimensions and the other attachment variables, we also computed partial correlations controlling for the variance shared between the two attachment dimensions (see also Table 2). As expected, ECR-RC anxiety and avoidance showed a number of similar associations with other attachment constructs. Both ECR-RC dimensions were negatively related to the Attachment Security

Scale and to the secure vignette from the Relationship Questionnaire, both in the raw and in the partial correlations. Also, both ECR-RC dimensions were related to the fearful-avoidant vignette of the RQ in the raw correlations. Unexpectedly, ECR-RC avoidance was no longer related to the RQ fearful-avoidant vignette in the partial correlations.

The ECR-RC also showed a number of differential associations with the other attachment measures. As expected, the ECR-RC anxiety dimension was positively related to the preoccupied vignette of the Relationship Questionnaire, both in the raw and partial correlations. Also, although the ECR-RC anxiety scale was not significantly related to the preoccupied scale of the Preoccupied and Avoidance Coping Questionnaire in the raw correlations, after partialling out the shared variance between the attachment dimensions, the correlation became significant. In contrast to the ECR-RC anxiety dimension, the ECR-RC avoidant dimension was unrelated or even slightly negatively related to the RQ and PACQ preoccupied scales after partialling out the variance shared with ECR-RC anxiety. In sum, as expected the RQ and PACQ preoccupied scales are uniquely related to ECR-RC anxious attachment, and not to ECR-RC avoidance.

Also in line with expectations, the ECR-RC avoidant scale showed a positive raw and partial correlation with the PACQ avoidant scale, whereas ECR-RC anxiety was not significantly related to the PACQ avoidance scale in the partial correlations. Unexpectedly, although the ECR-RC avoidant scale was positively correlated with the dismissing avoidant scale of the RQ in the raw correlations, this association was no longer significant after controlling for the variance with ECR-RC anxiety.

### *Predictive Validity*

As regards predictive validity, we examined associations between anxious and avoidant attachment and both depressive symptoms and



strategies of emotion regulation. Anxious attachment was related to depressive symptoms ( $r = .56, p < .001$ ), dysregulation ( $r = .24, p < .001$ ), and suppression ( $r = .25, p < .001$ ). Similarly, avoidant attachment was related to depressive symptoms ( $r = .43, p < .001$ ), dysregulation ( $r = .15, p < .05$ ), and suppression ( $r = .37, p < .001$ ). In these raw correlations, the two attachment dimensions did not relate differentially to the two emotion regulation strategies. To examine the unique associations of the attachment dimensions with depressive symptoms and the emotion regulation strategies, we performed a set of regression analyses in which the variance between anxiety and avoidance was controlled for.

Hierarchical linear regression analyses were conducted with the attachment dimensions as dependent variables and with depressive symptoms and strategies of emotion regulation as independent variables, thereby controlling for the effects of a number of relevant background variables (i.e., gender, age, and family structure). To examine whether the association between anxiety and avoidance causes problems of multicollinearity, we inspected variation inflation factors (VIF), which should be below 10. The largest VIF-value is 1.45, suggesting that multicollinearity is not a problem in these data (Hair, Anderson, Tatham, & Black, 1995).

With a first hierarchical linear regression analysis we examined whether the two ECR-RC attachment dimensions would contribute independently to the prediction of depressive symptoms after controlling for the background variables. Both anxious ( $\beta = .47, p < .001$ ) and avoidant attachment ( $\beta = .16, p < .05$ ) were significantly related to depressive symptoms. To examine whether the attachment scales are differentially associated with the emotion regulation strategies, a second set of regression analyses was performed. Attachment anxiety and avoidance were entered as predictors of emotional dysregulation in a first regression analysis and of

emotional inhibition in a second regression analysis. As expected, anxious attachment was positively related to dysregulation ( $\beta = .22, p < .001$ ) whereas avoidant attachment was unrelated to dysregulation ( $\beta = .01, p > .05$ ). Also as expected, avoidant attachment was uniquely related to emotional inhibition ( $\beta = .30, p < .001$ ) whereas anxious attachment was unrelated to deactivating strategies ( $\beta = .08, p > .05$ ).<sup>4</sup>

## Discussion

In middle childhood and early adolescence there is a scarcity of instruments assessing attachment anxiety and avoidance. In the current research, we introduced and validated a child version of the ECR-R, which is a frequently used and well-validated instrument for measuring the two fundamental dimensions of attachment identified in prominent models of attachment in adolescence and adulthood (Bartholomew & Horowitz, 1991; Brennan et al., 1998; Mikulincer & Shaver, 2007).

Exploratory and confirmatory factor analyses yielded two factors, representing attachment anxiety and attachment avoidance. In line with previous research using the ECR (e.g., Conradi, Gerlsma, van Duijn, & de Jonge, 2006) and in particular with research using the ECR-R, which tends to result in higher correlations between anxiety and avoidance than the original ECR (e.g., Sibley et al., 2005), the two dimensions were strongly correlated. Thus, individuals scoring low (respectively high) on avoidance tend to score low (respectively high) on anxiety. As such, this correlation suggests that interindividual differences between children in terms of attachment can be at

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<sup>4</sup> Because some items had a relatively low factor loading, we also did some analyses with a shortened version of the ECR-RC, which included only items that have a loading of minimal .40 on one factor and less than .40 on the other factor (See Table 1). As a result the two scales (Anxiety and Avoidance) are reduced to 15 and 17 items respectively. The correlation between both reduced scales was .54 in Study 1 and .53 in Study 2 ( $p < .001$ ), which is highly comparable to the correlation obtained with the full version of the scales. Moreover, the results regarding predictive validity with the shortened version of the questionnaire were virtually identical to those obtained with the full 36-item version.

least partly explained by a distinction between attachment security and attachment insecurity. If, however, attachment security (versus insecurity) would be the only factor determining individual differences in attachment, then the correlation between avoidance and anxiety would need to be more pronounced or would even be close to one. Nonetheless, this substantial correlation contradicts the assumption of orthogonality forwarded in different models of attachment (e.g., Bartholomew, 1990; Brennan et al., 1998). It should be noted that, although Brennan et al. (1998) suppose that the two dimensions are in essence orthogonal or uncorrelated, Bowlby did not expect orthogonality between the working models of self and other (Bowlby, 1973). Moreover, this orthogonality claim did not receive much empirical support, even in research with the ECR (e.g., Conradi et al., 2006). Further, the strength of the association between anxiety and avoidance may also differ by type of relationship. For example, Conradi et al. (2006) hypothesize that the avoidance and anxiety components of the attachment system could become more closely knit in people with lasting relationships, including the child-mother relationship, which was the focus in our study.

An additional explanation for the high correlation between the anxious and avoidant attachment dimensions in our samples of middle childhood children and early adolescents could involve children's cognitive abilities. As the meta-cognitive capacities of children are still under development, it is reasonable to assume that children show greater susceptibility to response bias than do older adolescents or adults (Soto, John, Gosling, & Potter, 2008). In developmental research on the structure of personality it has indeed been found that, perhaps as a consequence of this susceptibility to response bias, younger children are less likely to differentiate among dimensions (Soto et al., 2008). In line with this, in our data the associations between anxiety and avoidance seem to be even somewhat more pronounced than in samples of

late adolescents and adults. Given that these are among the first studies on the distinction between anxiety and avoidance in this age period, it is unclear whether the strong association between anxiety and avoidance represents a substantive, developmental issue related to the structure of the attachment organization or whether it is an assessment issue related to children's cognitive capacities. In other words, it is unclear whether the attachment system per se is less differentiated in middle childhood and early adolescence or whether children's responses to attachment-related questions are less differentiated. Future research explicitly addressing the role of response bias could shed a light on these alternative hypotheses. Whatever the outcome of such research, it is important to note that anxiety and avoidance were clearly distinct in the two samples studied here and that both dimensions showed a differential pattern of associations with variables included in Study 2 to address construct validity and predictive validity.

Construct validity was addressed by examining the correlations between attachment anxiety and avoidance as measured by the ECR-RC and the attachment dimensions as assessed by the Attachment Security Scale (ASS), the Relationship Questionnaire (RQ), and the Preoccupied and Avoidance Coping Questionnaire (PACQ). As expected, attachment anxiety and avoidance as measured by the ECR-RC show significant negative associations with each measure of secure attachment used in this study. Further in line with expectations, the ECR-RC attachment anxiety dimension showed unique associations with measures of preoccupied attachment and fearful avoidant attachment, both of which are indeed characterized by high anxiety (Brennan et al., 1998). In contrast and in line with expectations, the ECR-RC avoidance scale was uniquely related to the PACQ avoidance scale. Unexpectedly however, the association between the ECR-RC avoidant scale and the RQ dismissing avoidant scale was not significant after controlling for the variance

with ECR-RC anxiety, which may be related to the low reliability of the RQ assessment of attachment styles. In addition, upon closer inspection the RQ dismissing avoidance vignette appears to tap into a relatively more confident and self-reliant type of avoidant attachment (e.g., “It is very important to me to feel independent and self-sufficient”) compared to the avoidance items of the ECR-RC (e.g., “I find it difficult to admit I need help from my mother”). With the exception of the latter unexpected findings, the findings were in line with expectations and, as such, attest to the construct validity of the ECR-RC.

As regards the predictive validity of the ECR-RC, both ECR-RC attachment dimensions were found to relate to depressive symptoms and emotion regulation strategies in theoretically expected ways, at least when the variance shared between anxiety and avoidance was controlled for. First, ECR-RC attachment anxiety and avoidance explained independent variance in depressive symptoms. Interestingly, anxious attachment showed a stronger association with depressive symptoms than avoidant attachment ( $t = 2.77, p < .01$ ), which is in line with research in late adolescent and adult samples (see the overview of Mikulincer & Shaver, 2007). One possible explanation for this finding is the specific linkage hypothesis, which states that children with an anxious attachment are more likely to have internalizing problems, while avoidantly attached children are more at risk to develop externalizing problems (Finnegan et al., 1996). Another possibility is that the associations between distinct attachment dimensions and depression depends on the specific aspects of depression that are investigated. In research with late adolescents and adults, it has been found for instance that anxious attachment is particularly strongly related to interpersonal aspects of depression (e.g., lack of support), while avoidant attachment is more strongly related to achievement-focused aspects of depression (e.g., perfectionism) (Mikulincer & Shaver, 2007). An interesting avenue for future research is to examine whether such

specific and differentiated associations between attachment dimensions and qualitatively different symptoms of depression also occur in middle childhood and early adolescence, a life period characterized by increased sensitivity to depressive symptoms (e.g., Costello, Mustillo, Erkanli, Keeler, & Angold, 2003).

The second outcome variable used in Study 2 to examine predictive validity is emotion regulation. Shaver and Mikulincer (2002) describe in their model how the anxious and avoidant attachment dimensions are related to dysregulated and inhibited strategies of emotion regulation. According to this model, anxiously attached individuals would fear to be abandoned, but would at the same time see proximity seeking as a viable or maybe even as the only option to cope with emotional distress. Therefore, anxiously attached individuals would use hyperactivating strategies to elicit increased attention from others and to ensure others' availability. Instead, people who are avoidantly attached learned that attachment behavior leads to rejection or anger instead of closeness or love. As a consequence, they use deactivating strategies, where stress will be dealt with by eliminating and suppressing negative emotions (Mikulincer & Shaver, 2007). The present results are in line with these theoretical assumptions, as ECR-RC anxiety shows a unique positive association with dysregulated emotion regulation strategies while ECR-RC avoidance shows a unique positive association with inhibiting strategies of emotion regulation.

### *Limitations*

Several limitations to these studies can be noted. First, we exclusively relied on self-report measures of our key constructs, which may have invoked problems with defensive distortion or other forms of response bias. In addition, due to shared method variance some of the observed relations between variables may be overestimated. It would be worthwhile to examine whether interview-based measures of attachment 'states of mind' such as the

Child Attachment Interview (Target, Fonagy, & Shmueli-Goetz, 2003) are related to scores on the ECR-RC. Much like in research with adults, children's self-report measures are assumed to capture conscious mental processes (Shaver & Mikulincer, 2002). However, although self-report measures are not intended to tap unconscious processes directly, social psychologists and others suggest that individual differences on self-report attachment measures would relate to measurable unconscious processes (Shaver & Mikulincer, 2002). Also, it may be important to use a multi-informant approach where information about external validity measures are obtained from alternative data sources such as parents, close friends, and teachers. Further, our choice to work with the ECR-R was based on the consideration that it has somewhat stronger psychometric properties compared to the ECR. However, we do realize that the strong correlations between anxiety and avoidance in the ECR-RC are a source of concern. Future research should further investigate this issue.

Second, caution is warranted in generalizing the present study's results to other populations because the current sample generally consisted of well-adjusted Dutch speaking Caucasian children. The stability of the factor structure obtained here and the generalizability of the validity findings need to be further examined in samples with more heterogeneity in terms of educational level, culture, language, family structure, and other relevant background variables. Based on this research, a shorter version of the ECR-RC could also be developed by removing items that are redundant and items with low factor loadings.

Third, due to the cross-sectional nature of both studies we could not examine test-retest reliability. A longitudinal study would not only be useful to obtain estimates of test-retest reliability but also to provide a better and more conservative test of the predictive validity of the ECR-RC.

Finally, Fraley et al. (2000) formulated two interesting caveats in research with the ECR-R that may be examined further. First, they argue that the ECR-R could be improved by developing more items that are worded in the trait-opposite direction (i.e., reverse keyed). Also Mikulincer and Shaver (2007) argue that this shortage of reverse-scored items makes the anxiety scale more susceptible to response bias. A second yet related caveat is that more items are needed to measure the low ends of the anxiety and avoidance dimensions. Whereas most items tap into high levels of anxious and avoidant thoughts and behaviors, only few items tap into a lack of anxiety or avoidance or into feelings opposite to anxiety or avoidance (e.g., feelings and actions of reliance and closeness). One possible solution to overcome this limitation is to develop more discriminating items in the secure region of the two-dimensional space. Another possibility is to use the ECR-R in combination with a measure of felt security. These considerations could be taken into account in future work on the child version of the ECR-R.

### *Conclusion*

The current studies were the first to provide evidence for the usefulness of the ECR-RC, an instrument for measuring anxious and avoidant attachment in middle childhood children and early adolescents. In our view, the ECR-RC has a number of important advantages over extant measures of attachment in middle childhood and early adolescence, as it (a) explicitly distinguishes between anxiety and avoidance instead of providing an overall assessment of attachment insecurity, (b) has a clear and interpretable factor structure and scales with strong internal consistency, and (c) is similar to the ECR-R used for adolescents and adults, so that it is useful in longitudinal research examining development in attachment from middle childhood to late adolescents and adulthood. For these reasons, it is our hope that future research will further address the validity of the ECR-RC (e.g., with the Inventory



of Parent and Peer Attachment; Armsden & Greenberg, 1987 as well as with interview-based measures of attachment) and demonstrate its usefulness as an assessment tool in future developmental and clinical research on attachment.

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Table 1

*Results of the Rotated (Promax) Factor Analysis on the ECR-RC (N = 514)*

ECR-RC items		Mother		Father	
		F1	F2	F1	F2
1	I'm afraid my mother will stop loving me	<b>.61</b>	-.06	<b>.65</b>	.06
3	I'm worried that my mother might want to leave me	<b>.74</b>	-.05	<b>.69</b>	.05
5	I'm worried that my mother doesn't really love me	<b>.81</b>	-.08	<b>.84</b>	-.02
7	I'm worried that my mother doesn't love me as much as I love her	<b>.83</b>	-.08	<b>.79</b>	-.10
9	I wish my mother would love me just as much as I love her	<b>.33</b>	-.20	.29	-.21
11	I worry a lot about my relationship with my mother	<b>.43</b>	.22	<b>.64</b>	.14
13	When I don't see my mother, I worry she may stop thinking about me	<b>.66</b>	-.09	<b>.72</b>	-.15
15	When I show my mother I love her, I'm afraid she doesn't love me as just as much	<b>.73</b>	-.02	<b>.83</b>	-.06
17	I do not often worry that my mother would abandon me	<b>-.47</b>	-.11	<b>-.38</b>	-.20
19	The things my mother says and does make me unsure about myself	.27	.30	<b>.48</b>	.17
21	I do not worry that my mother would abandon me	<b>-.48</b>	-.03	<b>-.32</b>	-.15
23	I feel that my mother does not want to get as close to me as I'd like	<b>.54</b>	.04	<b>.60</b>	-.01
25	I sometimes think my mother has changed her feelings about me without any reason	<b>.72</b>	-.03	<b>.77</b>	.04
27	I'm afraid that I want to feel too close to my mother and she does not like it	<b>.66</b>	.04	<b>.74</b>	-.06
29	I'm afraid my mother wouldn't love me any more if she found out how I really feel and what I really think	<b>.47</b>	.24	<b>.63</b>	.06
31	I get angry because my mother doesn't give me enough love and support	<b>.41</b>	.24	<b>.66</b>	.06
33	I'm afraid my mother thinks less of me than she does of other children	<b>.43</b>	.29	<b>.57</b>	.22

(continued)

Table 1

*Results of the Rotated (Promax) Factor Analysis on the ECR-RC (N = 514) (continued)*

35	I think my mother only pays attention to me when I make a fuss	<b>.34</b>	.34	<b>.54</b>	.16
2	I don't like telling my mother how I feel deep down inside	.03	<b>.58</b>	.09	<b>.61</b>
4	I find it easy to tell my mother what I think and how I feel	.03	<b>-.70</b>	.06	<b>-.84</b>
6	I find it difficult to admit I need help from my mother	.19	<b>.32</b>	.28	.25
8	I am very comfortable feeling close to my mother	.12	<b>-.78</b>	-.05	<b>-.72</b>
10	It's not easy for me to tell my mother a lot about myself	.04	<b>.50</b>	.13	<b>.43</b>
12	I prefer not to get too close to my mother	-.02	<b>.70</b>	.06	<b>.68</b>
14	I don't feel comfortable when my mother cuddles up to me too much	-.03	<b>.56</b>	.15	<b>.44</b>
16	Feeling close to my mother comes easily to me	-.12	<b>-.61</b>	-.10	<b>-.70</b>
18	It's not difficult for me to feel close to my mother	-.17	<b>-.46</b>	-.09	<b>-.54</b>
20	I usually talk to my mother about my problems and worries	.12	<b>-.79</b>	.24	<b>-.92</b>
22	When I feel bad, it helps to talk to my mother	.10	<b>-.83</b>	.10	<b>-.91</b>
24	I tell my mother nearly everything	.19	<b>-.87</b>	.16	<b>-.92</b>
26	I talk things through with my mother	.03	<b>-.72</b>	.09	<b>-.83</b>
28	I get nervous when my mother wants me to share really close moments	.02	<b>.50</b>	.25	<b>.31</b>
30	I find it easy to ask my mother for help	-.05	<b>-.70</b>	-.01	<b>-.82</b>
32	I find it easy to rely on my mother	-.10	<b>-.64</b>	-.12	<b>-.72</b>
34	I find it easy to show my mother I love her	.05	<b>-.74</b>	-.06	<b>-.74</b>
36	I feel that my mother understands me well	-.14	<b>-.69</b>	-.09	<b>-.73</b>

Table 2

*Correlations Between the ECR-RC Subscale Scores and Other Attachment Questionnaires*

	ECR-RC anxiety	ECR-RC avoidance	ECR-RC anxiety	ECR-RC avoidance
	Raw correlations		Partial correlations	
ASS Secure	-.67***	-.70***	-.44***	-.49***
RQ Fearful avoidance	.39***	.35***	.28***	.05
RQ Dismissing avoidance	.23***	.21***	.14*	.12
RQ Secure	-.33***	-.32***	-.25***	-.14*
RQ Preoccupied	.46***	.32***	.31***	.04
PACQ Preoccupied	.09	-.13*	.17*	-.21**
PACQ Avoidance	.24***	.60***	-.09	.54***

ASS = Security Scale; RQ = Relationship Questionnaire; PACQ = Preoccupied and Avoidant Coping Questionnaire.

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



## Chapter 3

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### **The role of depressogenic personality and attachment in the intergenerational similarity of depressive symptoms: A study with early adolescents and their mothers<sup>1</sup>**

Parental depression has been identified as a risk factor for psychopathology in children, and for child depression in particular. Increasingly, research is addressing the underlying psychological processes that may explain the intergenerational similarity of depressive symptoms. In the present study, we aim to investigate the role of two theoretically relevant vulnerability factors in this intergenerational similarity, that is, (a) dimensions of depressogenic personality (i.e., sociotropy and autonomy) and (b) dimensions of attachment (i.e., anxiety and avoidance). Results in a sample of early adolescents and their mothers show significant intergenerational congruence of both sets of vulnerabilities. Moreover, the intergenerational similarity of both vulnerability factors was found to account for the association between mothers' and children's depressive symptoms. Within each generation there were also meaningful and specific associations between dimensions of depressogenic personality and dimensions of attachment, with sociotropy being primarily related to anxiety and with autonomy being primarily related to avoidance.

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<sup>1</sup> Brenning, K., Soenens, B., Braet, C., & Bosmans, G. (2011). The role of depressogenic personality and attachment in the intergenerational similarity of depressive symptoms: A study with early adolescents and their mothers. *Personality and Social Psychology Bulletin*, 37, 284-297.

## Introduction

In research on the etiology of depression, parental depression has been forwarded as a risk factor for internalizing problems in children, and for depressive symptoms in particular (Goodman & Gotlib, 1999). However, relatively less is known about the underlying psychological processes that may account for the intergenerational similarity of depressive symptoms. To address the social and personality processes accounting for the intergenerational similarity of depression, the current study draws from two well-established theories about the role of personality and interpersonal functioning in the development of depression, that is, Beck's (1983) theory on depressogenic personality and attachment theory (Bowlby, 1980, 1988). Specifically, we aimed to test an integrated conceptual model in which both Beck's dimensions of depressogenic personality (i.e., sociotropy and autonomy) and two central dimensions of attachment (i.e., anxiety and avoidance) are considered as possible mediating variables in the intergenerational similarity of depressive symptoms. The conceptual model guiding this research is depicted in Figure 1.

### *The Intergenerational Similarity of Depressive Symptoms and Depressogenic Personality*

Parental depression has often been identified as a risk factor for depression in children and adolescents (e.g., Goodman & Gotlib, 1999). However, empirical evidence for associations between parents' and children's depressive symptoms is not unequivocal (e.g., Besser and Priel, 2005). A meta-analysis by Connell and Goodman (2002) shows that most of the population effect sizes are small in magnitude (weighted mean  $r = .18$ ) and are moderated by variables such as gender and age. Notably, it was found that this effect size does not depend on whether the sample includes participants from clinical or

community populations. This finding suggests that both minor levels of depression and clinically elevated levels of depression transmit across generations (Connell & Goodman, 2002). With the current research, we aim to further examine the strength of association between mothers' and early adolescents' depressive symptoms in a non-clinical sample. On the basis of previous research, we expect this association, if any, to be small to moderate in size.

More importantly, we address the possibility that the small direct intergenerational similarity of depressive symptoms is a symptom of a deeper, more fundamental, and possibly stronger intergenerational similarity of personality-related and interpersonal features. An alternative possibility that will be forwarded is that depressive symptoms are more fundamental and that, accordingly, the transmission of depressive symptoms could at least partially explain the intergenerational transmission of depressogenic personality and attachment. We will refer to this alternative possibility as the primacy of depression hypothesis.

First, we consider the possible mediating role of depressogenic personality in the transmission of depressive symptoms. A number of theories of depression have identified qualitatively different dimensions of personality vulnerability to depression (Blatt & Maroudas, 1992). Beck (1983), for instance, revised his depression theory to include the role of two major personality dimensions, termed sociotropy and autonomy. According to Beck, sociotropy and autonomy represent cognitive vulnerabilities that possibly interact with life events to predict depression. The sociotropic individual is a socially dependent person with high needs for intimacy and affiliation. He or she is particularly sensitive to and afraid of rejection by others because he or she is dependent on others for safety and gratification. The cognitive distortions of the sociotropic type of depression center around the irreversibility of loss and

a sense of social undesirability. In contrast, autonomy is characteristic of individuals who tend to be assertive and strongly focused on the achievement of personal goals, to such an extent that they are highly sensitive to being subjected to demands or restrictions. The autonomous individual derives gratification from directing his or her own activities and attaining self-imposed goals. Cognitive distortions in individuals high on autonomy center around themes of defeat and failure because of personal incompetence.

Concepts similar to sociotropy and autonomy have been coined from other theoretical positions, including psychoanalytic ego psychology (Blatt & Maroudas, 1992). Blatt (1974), for example, formulates two primary personality configurations as vulnerabilities to psychopathology, that is, dependency and self-criticism/perfectionism. Similar to sociotropy, dependency is characterized by exaggerated and distorted attempts to establish and maintain gratifying interpersonal relations. Similar to autonomy, self-criticism/perfectionism is characterized by a relentless involvement in personal goal attainment. Efforts are concentrated on achievement in order to gain approval and to compensate for feelings of failure and inadequacy.

A large body of research supports Beck's and Blatt's theories of personality vulnerability to depressive symptoms (e.g., Beck, Taylor, & Robbins, 2003; Zuroff, Mongrain, & Santor, 2004). For instance, Beck et al. (2003) found significant associations between both sociotropy, autonomy, and depressive symptoms in freshman college students beginning their first semester. The association between sociotropy and depressive symptoms was specifically mediated by symptoms of homesickness (which represent a preoccupation with the family and a focus on interpersonal relationships), whereas the relationship between autonomy and depressive symptoms was specifically mediated by a lack of satisfaction with one's grades obtained (which represents a focus on achievement of goals). Similar findings were obtained in



studies with a younger population of early adolescents (e.g., Little & Garber, 2000). In the present study, we expect to find positive associations between sociotropy, autonomy and depressive symptoms, both in mothers and their early adolescent children.

As is the case with depressive symptoms, depressogenic personality dimensions show similarity across generations. A number of studies, both in clinical (e.g., Woodside et al., 2002) and non-clinical samples (e.g., Besser & Priel, 2005), examined the intergenerational similarity of dependency and self-criticism/perfectionism. For example, Besser and Priel (2005) found moderate but significant positive associations between scores for dependency of grandmothers and mothers, grandmothers and granddaughters, and mothers and granddaughters. A larger number of studies addressed the intergenerational congruence of self-criticism/perfectionism and found that parental self-criticism/perfectionism predicts self-criticism and perfectionism in adolescents (e.g., Besser & Priel, 2005) and younger adolescent children (ages 10-16) (e.g., Yu & Gamble, 2009). However, to the best of our knowledge, no study to date has examined the intergenerational similarity of Beck's dimensions of sociotropy and autonomy. In addition, no study investigated whether this similarity of depressogenic personality accounts for the intergenerational similarity of depressive symptoms. In the current study, it is expected that the direct association between mothers' and children's depressive symptoms will decrease or become non-significant when taking into account associations between (a) mothers' and children's sociotropy and autonomy and (b) associations between sociotropy and autonomy and depressive symptoms within each generation.

An alternative hypothesis would be that the associations between mothers' and children's personality factors would decrease or become non-significant when taking into account associations between mothers' and

children's depressive symptoms (i.e., the primacy of depression hypothesis). The association between mothers' and children's depressive symptoms could possibly be caused by shared etiological factors such as stressful life events or genetic risk (e.g., Goodman & Gotlib, 1999). Consistent with the scar model of depressive vulnerability (Rhode, Lewinsohn, & Seeley, 1990), the experience of depression may then affect both mothers' and children's personality functioning and lead to a personality vulnerability to depression. Thus, in this alternative model, the observed similarity in personality vulnerability would be the outcome rather than the cause of the observed similarity in depressive symptoms. In the current study, we will test and compare both models. Further, we consider another, yet conceptually related, variable that is associated with the intergenerational transmission of depressive symptoms, that is, (dimensions of) attachment.

#### *Dimensions of Attachment and Depression*

According to attachment theory, each individual develops an attachment style on the basis of interpersonal experiences with caregivers (Bowlby, 1980, 1988). Recent research supports a distinction between two continuous dimensions as the best way to model attachment (Brennan, Clark, & Shaver, 1998): (a) attachment anxiety, which involves preoccupation with social support, jealousy, fear and vigilance concerning abandonment and rejection, and (b) attachment avoidance, which involves avoidance of intimacy, discomfort with closeness, and excessive self-reliance. By crossing these two dimensions, four attachment orientations can be distinguished; secure attachment (low on both dimensions) and three insecure attachment dimensions: preoccupied attachment (high on anxiety and low on avoidance), dismissing-avoidant attachment (low on anxiety and high on avoidance), and fearful-avoidant attachment (high on both dimensions).

Bowlby (1980) postulated that the loss of secure attachment during infancy, childhood, or adolescence contributes to the development of depression. This loss can be due to the death of a primary attachment figure or to repeated failure to form a secure relationship with a caregiver. This leads to the formation of pessimistic, hopeless representations of self and the broader interpersonal world which would, in turn, increase the vulnerability for depression. Empirical findings in research with adults (Mikulincer & Shaver, 2007) as well as children (e.g., Muris, Meesters, van Melick, & Zwambag, 2001) indeed support a relationship between both attachment anxiety and attachment avoidance and depressive symptoms, although associations with avoidant attachment are typically less pronounced.

Germane to the topic of this study, attachment theory assumes substantial continuity of attachment patterns across generations and abundant research has addressed this notion. Van Ijzendoorn (1995) found, in a meta-analysis of studies using the Adult Attachment Interview and the Strange Situation Procedure, that attachment is congruent across generations. The intergenerational similarity of attachment was not only found in infants (Van Ijzendoorn, 1995) but also in young school children (Hesse, 1999), and adolescents (Besser & Priel, 2005), and both in clinical (e.g., Crowell & Feldman, 1991) and non-clinical samples (e.g., Benoit & Parker, 1994). In the current study, we specifically examine whether mothers' attachment to their current partner is related to their children's attachment to mother. This focus on the mother-partner relationship is based on the idea that mothers' partner probably represents one of the most salient and active attachment figures in their life. As such, attachment dynamics in the relationship with the partner may be more proximally related to mothers' current personality and depressive symptoms compared to for instance mothers' retrospective representations of their own mother.

Given the evidence for associations between insecure attachment dimensions and depressive symptoms, and for intergenerational congruence of attachment, the current study will investigate the role of both attachment anxiety and attachment avoidance in the association between mothers' and children's depressive symptoms. Specifically, it is expected that the direct association between mothers' and children's depressive symptoms will decrease or become non-significant when taking into account associations between (a) mothers' and children's attachment representations and (b) associations between attachment representations and depressive symptoms within each generation. Confirming parts of this reasoning, Besser and Priel (2005) found that insecure attachment in mothers was related to maternal depressive symptoms which, in turn, were associated with insecure attachment and subsequent depressive symptoms in the child.

Again, an alternative hypothesis would be that the association between mothers' and children's attachment representations would decrease or become non-significant when taking into account associations between mothers' and children's depressive symptoms. This would mean that the intergenerational similarity in attachment representations is the outcome rather than the cause of the intergenerational similarity in depressive symptoms. Such an alternative mechanism may be caused by the fact that the experience of depression decreases individuals' capacity to obtain and perceive adequate social support and to benefit from the availability of a close and confiding relationship. Across time, then, depressive symptoms may cause insecure attachment relationships and experiences within both generations, such that the observed intergenerational similarity in attachment representations is a function of a more fundamental similarity in depressive symptoms.

*Associations between Depressogenic Personality Dimensions and Attachment Dimensions*

At the conceptual level, the distinction between anxious and avoidant attachment shows a specific convergence with the distinction between sociotropy and autonomy, respectively (Blatt & Maroudas, 1992). Anxious attachment is characterized by a high demand for attention stemming from a hope that love will be provided, coupled with anxiety about loss of gratification (Bowlby, 1980). This pattern of anxiety and strong interpersonal concerns about important others parallels Beck's description of a sociotropic attitude. In contrast, avoidant attachment develops in childhood in response to loss or an inadequate or unsympathetic (critical, rejecting) care of a parent. As a defense against feeling unloved, the child strives to be self-reliant and later withdraws from others. Avoidantly attached individuals show little appreciation for, or investment in, interpersonal relatedness. The strong focus on self-reliance inherent in avoidant attachment is reminiscent of autonomy as described by Beck (Blatt & Maroudas, 1992). Although there is substantial theoretical convergence between both perspectives, the attachment dimensions are conceptually unique from sociotropy and autonomy (Blatt & Maroudas, 1992; Sibley, 2007). For instance, whereas Beck's (1983) concepts of sociotropy and autonomy are considered mainly cognitive orientations, the concepts of anxiety and avoidance are relatively more relational in nature and primarily reflect individuals' interpersonal orientation.

Consistent with this conceptual analysis, research with adults shows that anxious attachment is primarily associated with sociotropy (dependency) and to a lesser extent with autonomy (self-criticism), whereas avoidant attachment is specifically related to autonomy (self-criticism) (e.g., Sibley, 2007). At least one study in a younger population found that adolescents who reported low security of attachment to their parents were vulnerable to self-

criticism (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). However, unique associations between the two distinct attachment dimensions and the two depressogenic personality dimensions have not been investigated with early adolescents, which is unfortunate because both personality and the attachment system are fully developing during this period.

Thus, we expect to find specific relationships between anxious attachment and sociotropy, and between avoidant attachment and autonomy within the two generations studied. Across generations, we expect that the intergenerational similarity of attachment anxiety would play a specific role in the intergenerational similarity of sociotropy, whereas the intergenerational similarity of attachment avoidance would play a specific role in the intergenerational similarity of autonomy.

We are aware of only one study simultaneously addressing the intergenerational similarity of depressogenic personality and the intergenerational similarity of attachment dimensions. The study of Besser and Priel (2005) obtained evidence for the intergenerational congruence of both vulnerability factors (i.e., personality and attachment). Within generations, it was found that self-criticism mediated the association between attachment insecurity and depressive symptoms. Specifically, the low positive self dimension of attachment (which reflects high scores on attachment anxiety) was associated with self-criticism and dependency. Further, self-criticism (but not dependency) and the low positive self-attachment dimension were found to be related to depression in each generation. Between generations, evidence was found for significant intergenerational similarity in self-criticism and attachment but not for intergenerational similarity of depressive symptoms. These findings are in line with the notion that the transmission of depressogenic personality and attachment is more robust and fundamental than the transmission of depressive symptoms. The latter intergenerational

similarity may represent a mere symptom of the more fundamental similarity in depressogenic personality and attachment representations. Unfortunately, because Besser and Priel did not find significant intergenerational similarity of depressive symptoms to begin with, they could not test the central hypothesis of our study that the intergenerational similarity of depressive symptoms is accounted for by intergenerational similarity of depressogenic personality and attachment. Further, our study contributes in two other ways to the Besser and Priel (2005) study. First, the present research starts from Beck's cognitive-behavioral perspective (1983) as a conceptual starting point (i.e., sociotropy and autonomy) and, as such, is the first to examine the intergenerational similarity of sociotropy and autonomy. Second, we will use a different questionnaire for attachment than Besser and Priel, that is, the Experiences in Close Relationships Scale-Revised (ECR-R). The ECR-R is considered a more reliable assessment of anxious and avoidant attachment than the single item Relationship Questionnaire, which was used in Besser and Priel (2005).

#### *The present study*

The aim of the current research is to address three main hypotheses related to the conceptual model guiding this research (see Figure 1). First, we hypothesized that there would be a significant, yet modest, intergenerational similarity of depressive symptoms (Hypothesis 1). Second, we anticipated significant intergenerational similarity of depressogenic personality factors (i.e., sociotropy and autonomy) and of attachment dimensions (i.e., anxiety and avoidance). We also expected that the intergenerational similarity of these underlying interpersonal and personality features would account at least partially for the intergenerational similarity of depressive symptoms (Hypothesis 2). We will compare both models to a primacy of depression model, in which the intergenerational similarity of depression could explain the intergenerational similarity of depressogenic personality and attachment.

Third, we hypothesized that, within and across generations, depressogenic personality factors and attachment dimensions would be related in theoretically anticipated and specific ways (Hypothesis 3, see Figure 1). Note that, in mothers, depressogenic personality is modeled as an antecedent to attachment, whereas, in children, attachment is modeled as an antecedent to depressogenic personality. In line with the work of Sibley (2007), we reasoned that, in mothers, sociotropy and autonomy represent individual differences in mothers' global personality functioning, which in turn affect mothers' specific attachment style to a particular attachment figure, that is, their current partner. In children, however, we measured attachment to mother and it seemed more appropriate to model maternal attachment representations as developmental antecedents of depressogenic personality rather than as consequences thereof. Developmental accounts of the origin of depressogenic personality in children indeed point to the role of attachment representations as developmental precursors of dependency/sociotropy and self-criticism/autonomy (e.g., Blatt & Homann, 1992).

In examining these hypotheses, children's age and gender are investigated as possible moderating variables. Connell and Goodman (2002), for instance, found that maternal depression was more strongly related to emotional problems in younger children ( $\leq 12$  years of age) than in older children ( $\geq 13$  years of age). Regarding gender, Connell and Goodman (2002) proposed that psychopathology in parents may be more closely associated with internalizing problems in children of the same gender.

## **Method**

### *Participants and Procedure*

The sample consisted of 303 mother-child dyads. The early adolescent participants (141 male, 160 female, 2 missing) had a mean age of 12 years,



with a range between 8 and 14 years. The mothers had a mean age of 44, with a range between 34 and 54 years. Regarding educational level, 34.3% of the mothers completed secondary school, 46.3% had a bachelor's degree diploma, and 19.3% attained a master's degree diploma. Concerning family status, 258 participants (85.4%) were from intact families whereas the remaining participants were from divorced families or from families where one of the parents had deceased.

The data for this study were gathered in the context of a course on developmental psychology. All families were visited at home by undergraduate students to complete a set of self-report questionnaires. After reading and signing a participant consent form, the children as well as the mothers completed the scales on depressive symptoms, depressogenic personality and attachment. Participants were ensured that participation was voluntary, that they could end their participation to the study at any time, and that their data would be treated confidentially.

### *Measurements*

*Depressive symptoms.* Mothers were administered the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), a widely employed and well-validated self-report measurement for assessing the severity of depressive symptomatology in adults. Respondents are asked to rate each of 21 depressive symptoms on a scale ranging from 0 (*not present*) to 3 (*severe*) in terms of how they have been feeling during the past two weeks. The BDI-II is designed to provide a single overall score that can range from 0 to 63. Beck et al. (1996) reported excellent internal consistency and good convergent validity. In this research, the alpha coefficient was .86.

Children were administered the Children's Depression Inventory (CDI; Kovacs, 1985; Dutch translation by Timbremont, Braet, & Roelofs, 2008), which is an adaptation of the Beck Depression Inventory for use with children 7-17

years of age. This self-report scale includes 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. Each item is then scored from 0 (*symptom is absent*) to 2 (*symptom is present most or all the time*), resulting in a range of total scores from 0 to 54. Acceptable levels of internal consistency, validity, and test-retest reliability have been established (Kovacs, 1985). In the current study, Cronbach's alpha was .78.

*Depressogenic personality.* The Revised Personal Style Inventory (PSI-II; Robins et al., 1994) was used to assess the constructs of sociotropy and autonomy. The PSI-II consists of 48 items (24 items for each scale) which are rated on a scale from 1 (*totally disagree*) to 6 (*totally agree*). An example of a Sociotropy item is: 'I often put other people's needs before my own.' An example of an Autonomy item is 'It is hard for me to take instructions from people who have authority over me.' Both PSI scales have strong internal consistency and test-retest reliability (e.g., Robins et al., 1994). In the current study, Chronbach's alpha was .88 and .86 for maternal sociotropy and autonomy respectively.

For the early adolescent participants, a slightly modified version of the PSI-II was developed and validated in an independent pilot study with 462 children (150 male, 298 female, 14 missing) with a mean age of 13. To make the questionnaire more suitable and relevant for children, item wording was simplified, double negatives were removed, and the content was slightly altered. Factor analysis on the 48-item PSI-II resulted in a two-factor structure similar to that obtained in previous research with older adolescents and adults (i.e., sociotropy and autonomy). As in research with older adolescents and adults, we also found positive associations between both PSI-II factors and depressive symptoms. Alpha coefficients in this sample were .81 and .77 for children's sociotropy and autonomy, respectively.

*Attachment dimensions.* The Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller & Brennan, 2000; Dutch translation by Buysse & Dewitte, 2004) was used to measure maternal anxious and avoidant attachment. More specifically, the mothers were asked to rate the 36 attachment statements about their current partner. The anxiety scale (18 items) taps into feelings of fear of abandonment and strong desires for interpersonal merger (e.g., I worry about being abandoned by my partner). The avoidance scale (18 items) taps into discomfort with closeness, dependence, and intimate self-disclosure (e.g., I prefer not to show my partner how I feel deep down). Items are rated on a 7-point scale ranging from 'not at all' to 'very much'. In adult populations, the reliability and validity of the anxious and avoidant attachment scale are well documented (e.g., Sibley & Liu, 2004). In this study, Cronbach's alpha was .92 and .91 for attachment anxiety and avoidance, respectively.

The early adolescent participants completed a version of the ECR adjusted for middle childhood and early adolescence, that is, the Experiences in Close Relationships Scale-Revised Child version (ECR-RC; Brenning, Soenens, Braet, & Bosmans, 2011). A committee of researchers familiar with research in middle childhood and early adolescence slightly simplified the items so as to better reflect the developmental and reading level of early adolescent participants. The children were asked to rate the 18 anxiety and 18 avoidance statements about their mother. Both subscales have strong internal consistency and construct and predictive validity (Brenning et al., 2011). Cronbach's alpha of the ECR-RC in the current study was .85 and .90 for anxious and avoidant attachment, respectively.

## Results

### *Descriptive Statistics and Preliminary Analyses*

Table 1 presents the means and standard deviations of the study variables. The mothers in the current sample had a mean score on depressive symptoms of 6.40 (range 0-37). Considering the cutoff values of Beck and colleagues, 80.3% of the mothers have a low score on the BDI-II (score from 0 to 9), 14.2% report mild depressive symptoms (score from 10 to 18), 3.9% report moderate depressive symptoms (score from 19 to 25), and 1.6% report severe scores (score of 26 and above) (Beck, Rush, Shaw, & Emery, 1979). The early adolescents in the present sample had a mean score of 8.70 (range 0-30) on depressive symptoms. Elevated levels of depressive symptoms were reported by 8.7% of the children (score of 16 and above) (Timbremont et al., 2008).

Table 1 also presents the correlations among the study variables within and between generations. Within each generation, depressive symptoms were positively related to both depressogenic personality factors (i.e., sociotropy and autonomy) as well as to both attachment dimensions (i.e. anxiety and avoidance). Further, within each generation, significant positive correlations were found between both depressogenic personality dimensions and anxious attachment. Avoidant attachment showed a positive relationship with autonomy in both generations. Across generations significant positive associations were found between the ratings of mothers' and children's depressive symptoms, depressogenic personality factors, and attachment dimensions.

Preliminary analyses were conducted to examine differences in the study variables in terms of children's age, gender, and family status. First, correlations were computed between age and all study variables. The results showed a significant correlation between children's age and avoidant

attachment ( $r = .27, p < .001$ ), with older children reporting higher attachment avoidance, and between children's age and maternal depressive symptoms, with mothers of older children reporting less depressive symptoms ( $r = -.13, p < .05$ ). To examine differences in terms of gender and family status two separate multivariate analyses of variance were conducted, with each of the study variables as dependent variables. A significant overall effect of gender was found on the study variables (Wilks' Lambda  $F(10, 275) = 5.84, p < .001$ ). More specifically, gender had an effect on children's sociotropy ( $F(1, 284) = 35.34, p < .001$ ), with girls reporting higher scores on sociotropy than boys. Although family status had an effect on mother's anxious attachment score ( $F(3, 283) = 3.53, p < .05$ ), with lower scores on anxious attachment for mothers who live in an intact family compared to mothers who are divorced or where the partner has deceased, no significant overall effects of family status on the study variables were found (Wilks' Lambda  $F(30, 804.92) = 1.24, p > .05$ ).

#### *Primary Analyses: Structural Equation Modeling*

To estimate structural associations between the study variables while controlling for error variance, Structural Equation Modeling (SEM) with latent variables was conducted using LISREL 8.7 (Jöreskog & Sörbom, 1996). The primary analyses followed the two-step procedure recommended by Anderson and Gerbing (1988). First, a confirmatory factor analysis (CFA) was used to test the quality of the measurement model of the study constructs. Second, a series of structural models was tested. As suggested by Hu and Bentler (1999), we used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) as goodness of fit indices. Combined cutoff values of 0.95 for CFI and 0.06 for RMSEA indicate good fit. Finally, we used the corrected scaled chi-square difference test to compare nested models. Data screening indicated partial non-normality of a number of indicators and, therefore, we used the asymptotic covariance matrix as input and inspected

the Satorra-Bentler scaled chi-square (SBS- $\chi^2$ ; Satorra-Bentler, 1994). We controlled for the effects of the background variables (i.e., child age, child gender, and family status) in all primary analyses by allowing paths from each of these three variables to all the constructs included in the structural models.

*Measurement model.*

To model the 10 latent variables in the measurement model (maternal as well as children's depressive symptoms, sociotropy, autonomy, attachment anxiety, and attachment avoidance), three parcels were created for each construct, each consisting of a set of randomly selected items. No cross-loadings were allowed. The measurement model (SBS- $\chi^2(360) = 472.25$ ; CFI = .99; RMSEA = .03) had 30 indicators with significant ( $p < .001$ ) and moderate to strong loadings on the 10 latent factors, ranging from .66 to .95 (mean  $\lambda = .83$ ). Given the strong conceptual correspondence between the attachment and personality dimensions measured in this study, it was deemed important to examine whether the scores for sociotropy and autonomy are actually distinct from the scores for anxiety and avoidance. For this aim, we compared the fit of a measurement model in which attachment dimensions and their associated personality dimensions loaded on separate factors to the fit of an alternative model in which attachment dimensions and their associated personality factors loaded on the same underlying factors. The latter model had a significantly worse fit ( $\Delta\text{SBS-}\chi^2(30) = 1448.549$ ,  $p < .001$ ), thus supporting the distinctiveness of the personality and attachment dimensions.

*Hypothesis 1: Intergenerational similarity of depressive symptoms.*

In a first structural model (Model 1,  $N = 296$ ), we examined the intergenerational similarity of depressive symptoms. Estimation of Model 1 (SBS- $\chi^2(20) = 63.18$ ; CFI = .95; RMSEA = .09) showed that, controlling for children's age, gender and family status, maternal depressive symptoms are significantly related to children's depressive symptoms ( $\beta = .17$ ,  $p < .05$ ).

*Hypothesis 2a: Intergenerational similarity of depressogenic personality.*

In a second structural model (Model 2a,  $N = 292$ ), we examined whether the direct association between mothers' and children's depressive symptoms would be accounted for by the mother-child similarity in sociotropy and autonomy. To test this, Model 1 was extended by inserting mothers' and children's sociotropy and autonomy. Within generations, paths were estimated from sociotropy and autonomy to depressive symptoms. Between generations, paths were estimated from mothers' sociotropy and autonomy to children's sociotropy and autonomy, respectively. Estimation of the resulting model (SBS- $\chi^2(163) = 296.76$ ; CFI = .97; RMSEA = .05), depicted in Figure 2, showed that the direct association between maternal depressive symptoms and adolescents' depressive symptoms becomes non-significant when taking into account the mother-child similarity in sociotropy and autonomy. In both mothers and children, sociotropy and autonomy predicted independent variance in depressive symptoms. Maternal sociotropy and autonomy were significantly related to child sociotropy and autonomy, respectively. Adding cross-paths from maternal sociotropy to adolescents' autonomy ( $\beta = .15, p > .05$ ) and from maternal autonomy to adolescents' sociotropy ( $\beta = .12, p > .05$ ) did not significantly improve the fit of the model ( $\Delta\text{SBS-}\chi^2(2) = 4.99, p > 0.05$ ). This latter finding supports the specificity of the intergenerational similarity of sociotropy and autonomy.

*Hypothesis 2b: Intergenerational similarity of attachment dimensions.*

In a third structural model (Model 2b,  $N = 286$ ), we examined whether the direct relationship between mothers' and children's depressive symptoms would be accounted for by the mother-child similarity in attachment anxiety and avoidance. Model 1 was extended by inserting mothers' and children's attachment anxiety and avoidance. Within generations, paths were estimated from anxiety and avoidance to depressive symptoms. Between generations,

paths were estimated from mothers' anxiety and avoidance to children's anxiety and avoidance, respectively. Estimation of the resulting model (SBS- $\chi^2(163) = 327.67$ ; CFI = .97; RMSEA = .06), depicted in Figure 3, showed that the direct path from maternal depressive symptoms to adolescents' depressive symptoms became non-significant when taking into account the mother-child similarity in attachment anxiety and avoidance. Whereas, in children, both anxiety and avoidance were independently related to depressive symptoms, in mothers only anxiety was significantly related to depressive symptoms. The paths from mothers' anxiety and avoidance to adolescents' attachment anxiety and avoidance, respectively, were significant. Adding cross-paths from maternal anxiety to child avoidance ( $\beta = .00, p > .05$ ) and from maternal avoidance to child anxiety ( $\beta = 0.08, p > .05$ ) did not significantly improve the fit of the model ( $\Delta\text{SBS-}\chi^2(2) = 0.37, p > 0.05$ ).

*The primacy of depression hypothesis.*

In an additional set of structural models, we examined the alternative possibility that the direct association between mothers' and children's depressogenic personality and attachment dimensions could be accounted for by the mother-child similarity in depressive symptoms. First, we examined the primacy of depression hypothesis for the depressogenic personality dimensions. In an initial model, we examined the intergenerational similarity of the depressogenic personality factors (i.e., without including the similarity of depressive symptoms). Estimation of this model (SBS- $\chi^2(75) = 146.64$ ; CFI = .97; RMSEA = .06) showed that, controlling for children's age, gender and family status, mothers' sociotropy and autonomy were significantly related to children's sociotropy ( $\beta = .19, p < .01$ ) and autonomy ( $\beta = .19, p < .01$ ), respectively. Then, we examined whether the intergenerational similarity of depressogenic personality factors would be accounted for by the similarity in depressive symptoms by adding mother and child depressive symptoms (and



the path between both) to the model and by drawing paths from depressive symptoms to the two personality dimensions in each generation. Estimation of this model (SBS- $\chi^2(162) = 258.95$ ; CFI = .98; RMSEA = .05) showed that, controlling for children's age, gender and family status and incorporating mothers' and children's depressive symptoms, mothers' sociotropy and autonomy was still significantly related to children's sociotropy ( $\beta = .16, p < .01$ ) and autonomy ( $\beta = .13, p < .05$ ), respectively. Thus, the intergenerational similarity in depressive symptoms does not seem to account for the intergenerational similarity of personality.

Second, we examined the primacy of depression hypothesis for the attachment dimensions. Estimation of an initial model examining intergenerational similarity of attachment dimensions without including intergenerational similarity of depressive symptoms (SBS- $\chi^2(75) = 191.83$ ; CFI = .97; RMSEA = .07) showed that, controlling for children's age, gender and family status, mothers' anxiety and avoidance were significantly related to children's anxiety ( $\beta = .19, p < .01$ ) and avoidance ( $\beta = .13, p < .01$ ), respectively. As with the personality dimensions, we next examined a model in which the direct association between mothers' and children's attachment dimensions would be accounted for by the mother-child similarity in depressive symptoms. Estimation of this model (SBS- $\chi^2(162) = 240.78$ ; CFI = .99; RMSEA = .04) showed that, controlling for children's age, gender and family status and incorporating mothers' and children's depressive symptoms, mothers' anxiety and avoidance were only marginally significantly related to children's anxiety ( $\beta = .12, p = .08$ ) and avoidance ( $\beta = .09, p = .08$ ), respectively. Thus, it seems that the intergenerational similarity of depressive symptoms may at least partly account for the similarity of the attachment dimensions.

*Hypothesis 3: Testing the integrated model.*

Model 3 ( $N = 282$ ) is the integrated conceptual model where both depressogenic personality dimensions and attachment dimensions are entered simultaneously. Estimation of this model ( $SBS-\chi^2(443) = 625.84$ ;  $CFI = .98$ ;  $RMSEA = .04$ ), depicted in Figure 4, showed that the direct effect of maternal depressive symptoms on adolescents' depressive symptoms becomes non-significant when taking the mother-child similarity in both depressogenic personality and attachment dimensions into account. Most of the hypothesized paths were significant. Within the two generations, sociotropy was related significantly to attachment anxiety and autonomy was significantly related to attachment avoidance. Adding cross-paths between sociotropy and avoidance ( $\beta = .02$ ,  $p > .05$  within the mother generation;  $\beta = -.11$ ,  $p > .05$  within the child generation) did not significantly improve the fit of the model ( $\Delta SBS-\chi^2(2) = 0.09$ ,  $p > 0.05$ ). However, adding cross-paths between autonomy and anxiety ( $\beta = .32$ ,  $p < .001$  within the mother generation;  $\beta = .28$ ,  $p < .01$  within the child generation) did significantly improve the fit of the model ( $\Delta SBS-\chi^2(2) = 26.23$ ,  $p < 0.001$ ). Therefore, the relationship between autonomy and anxiety in both the mother and child generation was retained in the final model. Within the mother generation, sociotropy and attachment anxiety (but not autonomy and attachment avoidance) were independently related to maternal depressive symptoms. Within the child generation, autonomy and attachment anxiety (but not sociotropy and attachment avoidance) were independent predictors of depressive symptoms. Between generations, the intergenerational similarity of both attachment anxiety and avoidance remained significant. Whereas the intergenerational similarity of sociotropy remained significant after taking into account the intergenerational similarity of anxiety, the intergenerational similarity of autonomy was reduced to non-

significance after taking into account the intergenerational similarity of avoidance.

*Moderation by child age and gender.*

To examine whether children's age and gender play a role as moderator variables in the final structural model, multigroup analyses were conducted. First, we examined whether children's age moderated the final structural model comparing younger (8-11 years) to older children (12-14 years). Because the median age was 12 years, we used a cut-off of 12 years to split the sample into two age groups. In addition, these groups correspond roughly with the distinction between pre- and early adolescence. A multigroup analysis was conducted comparing a constrained model (in which the modeled pathways were set to be invariant across different age categories) with an unconstrained model (in which these parameters were freely estimated across different age categories). No significant differences were found between the model for younger children and the model for older adolescents ( $\Delta\text{SBS-}\chi^2(19) = 16.25, p > 0.05$ ). Second, we examined whether children's gender moderated the final structural model. When comparing the mother-daughter and mother-son models, no significant differences were found ( $\Delta\text{SBS-}\chi^2(19) = 14.60, p > 0.05$ ).

## **Discussion**

The first question guiding this study was about the intergenerational similarity of depressive symptoms. The results showed a small but significant association of .17 between mothers' and children's depressive symptoms. The size of this association is remarkably close to the weighted mean effect size obtained in the Connell and Goodman (2002) meta-analysis. Given that our study, together with many other studies, shows significant intergenerational similarity in non-clinical samples, it seems that the transmission of depression and vulnerability to depression can be situated on a continuum or on a

spectrum ranging from minor or sub-clinical vulnerability to severe and clinically elevated vulnerability (Van Leeuwen, Mervielde, De Clercq, & De Fruyt, 2007).

Given this modest, yet significant, intergenerational similarity in depressive symptoms, our second question was whether this similarity in depression can be accounted for by the intergenerational similarity of two theoretically relevant psychosocial risk factors, that is, depressogenic personality and attachment. Studies based on Blatt's theoretical propositions on personality already provided evidence for the intergenerational transmission of both dependency and self-criticism (e.g., Besser & Priel, 2005). However, to the best of our knowledge, the current study is the first to examine patterns of intergenerational similarity in Beck's (1983) constructs of sociotropy and autonomy. The present findings support the intergenerational similarity hypothesis and also contribute to the limited body of research on the relationship between depressogenic personality factors and depressive symptoms during middle childhood and early adolescence (e.g., Little & Garber, 2000). Both sociotropy and autonomy showed a significant association with depressive symptoms within each generation. Moreover, as predicted, the association between mothers' and children's sociotropy and autonomy appeared to explain the direct association between mothers' and children's depressive symptoms. Such findings suggest that the observed intergenerational similarity of depressive symptoms is a function of a deeper and more fundamental similarity in depressogenic personality.

Similar findings were obtained when examining attachment dimensions as mediating variables in the intergenerational similarity of depressive symptoms. As expected, anxious attachment is consistently associated with an elevated prevalence of depressive symptoms within each generation and shows intergenerational similarity between generations.

Although avoidant attachment shows intergenerational similarity as well, less consistent results are found for a relationship with depressive symptoms. A significant association was found between avoidant attachment and depressive symptoms in the child generation, whereas the relationship between avoidant attachment and maternal depressive symptoms turned out non-significant. As such, it was primarily the similarity of anxiety (rather than the similarity of avoidance) which was found to account for the intergenerational similarity of depressive symptoms.

The comparatively stronger association between anxiety and depressive symptoms than between avoidance and depressive symptoms (specifically in mothers) is in line with previous research. In the meta-analysis by Mikulincer and Shaver (2007), only half of the studies on adult attachment showed positive associations between attachment avoidance and depressive symptoms. This is consistent with the suggestion of Besser, Priel, and Wiznitzer (2002) that mainly attachment styles involving a negative self-model increase the risk for depression. Possibly, there are interindividual differences between people scoring high on avoidant attachment, with some people avoiding close relationships due to fear of rejection from others (negative self-model), and with other people avoiding close relationships due to lack of desire to interact with others (positive self-model) (Bartholomew & Horowitz, 1991). Given that a negative self-model has been found to be a major predictor of depressive symptoms, only the former group of avoidant people may show a strong vulnerability to depressive symptoms.

Further, this study investigated the alternative hypothesis that depressive symptoms would account for the intergenerational similarity of personality and attachment dimensions (rather than the other way around). This alternative model did not receive support for the personality dimensions, as the intergenerational similarity of personality dimensions remained

significant after taking into account the intergenerational similarity of depression. In contrast, this alternative model did receive some support for the attachment dimensions. Given that both a model where the intergenerational similarity of attachment accounts for the similarity of depression and a model where the intergenerational similarity of depression accounts for the similarity of attachment receive some support, it is possible that the intergenerational transmission of attachment and depressive symptoms develops in a reciprocal and mutually reinforcing fashion. The transmission of insecure attachment representations could lead to hopeless self-representations which could increase vulnerability for depressive symptoms. At the same time, a negative self-concept and depressive symptoms could lead to negative forms of feedback seeking and to low relationship support (e.g., Haeffel & Mathew, 2010), which could in turn lead to the development of more insecure attachment representations. The cross-sectional nature of the current study strongly limits the possibility to draw conclusions regarding direction of effects. Accordingly, longitudinal research is needed to investigate these presumed reciprocal dynamics.

We also investigated the relationship between the two underlying psychological processes, that is, depressogenic personality and attachment. In line with previous research (e.g., Sibley, 2007), anxious and avoidant attachment were specifically linked to sociotropy and autonomy, respectively. At the same time, we found a significant relationship between anxiety and autonomy. Possibly, some autonomous individuals want to achieve goals in order to be accepted by others and to avoid being appreciated less in case of failure (see also Besser and Priel, 2005). As a consequence, people who score high on autonomous personality would also be prone to attachment anxiety. This relationship between autonomy and attachment anxiety is consistent with previous research (e.g., Sibley, 2007).

Our findings suggest that the concepts of sociotropy/autonomy and the concepts of anxiety/avoidance are related yet distinct. This is consistent with the fact that although Beck's theory and attachment theory share some common features, they are also different in a number of important respects (Blatt & Maroudas, 1992). First, whereas Beck (1983) primarily highlights individual differences in how individuals process and interpret experiences, attachment theory primarily highlights individual differences in how people relate to others. Thus, whereas sociotropy and autonomy primarily represent cognitive modes of processing information, anxiety and avoidance represent relatively more relational orientations reflecting social expectations and modes of interpersonal behavior. A second, yet related, conceptual difference concerns the role of contemporary versus early life experiences. Whereas attachment theory (e.g., Bowlby, 1980) emphasizes the role of attachment experiences in early childhood for the development of later attachment orientations, Beck describes individual differences in sociotropy and autonomy primarily in terms of current cognitive distortions (Blatt & Maroudas, 1992). Contrary to attachment theory, Beck's emphasis on here-and-now distortions in cognitive processing comes at the expense of attention to predisposing developmental antecedents of vulnerability to depression. Third, Sibley and Overall (2008), argue that sociotropy and autonomy represent relatively more global ways of responding and processing experiences across a range of different contexts, whereas attachment anxiety and avoidance fall lower in the network hierarchy and describe modes of functioning within particular relationships.

Together with a study by Besser and Priel (2005), the present study is among the first to simultaneously investigate the role of depressogenic personality and attachment in the intergenerational similarity of depressive symptoms. Whereas the intergenerational similarity of sociotropy was uniquely

associated with the intergenerational similarity of attachment anxiety, the intergenerational similarity of autonomy was found to be related to the intergenerational similarity of both avoidance and anxiety. These findings are generally consistent with the Besser and Priel (2005) findings. Besser and Priel could, however, not examine the hypothesis that the intergenerational similarity of depressive symptoms can be accounted for by the intergenerational similarity of depressogenic personality and attachment because they did not find significant similarity in depressive symptoms to begin with. The results of the current study show that both depressogenic personality and attachment dimensions account for the similarity in depressive symptoms across generations. Further, no moderating effects of children's age nor gender were found. Although Connell and Goodman (2002) pointed to the importance of examining whether children's age and gender qualify the effects of predictors of child depression, our findings were remarkably consistent across age and gender, thus testifying to the stability of the proposed model.

#### *Limitations and Directions for Future Research*

Although the current research yielded some unique findings, some limitations must be mentioned. First, an important question for further research is whether fathers might also contribute to the intergenerational similarity of depressive symptoms. According to Connell and Goodman (2002), it is no longer justifiable to exclude fathers from research programs on the basis of the belief that their mental health problems are less closely related to children's problems than are mothers'. Although children's internalizing problems were more closely related to the presence of psychopathology in mothers than in fathers in the meta-analysis of Connell and Goodman (2002), the magnitude of the differences were small.

Second, caution is needed in generalizing the present study's results to diverse populations. The present study has a rather small sample size relative



to the large number of parameters that had to be estimated. In the current study, the N/q ratio, which represents the number of participants relative to the number of parameters to be estimated, of the total integrated model was 2.59, which is relatively low (Jackson, 2003). As such, future research should include more child-mother dyads to improve the statistical power of the analyses. Further, the current study's sample is a non-clinical sample of generally Caucasian families with a relatively low incidence of depressive complaints. Future research in racially diverse populations and clinical samples is needed to investigate the applicability of the intergenerational model in individuals with other ethnical backgrounds and with more severe depressive symptoms. It is possible that the effects obtained in this study may be even more pronounced in samples with higher levels of depressive symptoms or stronger variability in depressive symptomatology (Van Leeuwen et al., 2007).

Third, the study was based on mothers' and children's self-reports but did not include data from other important sources, including observational measures and teacher reports. It remains unclear whether the strategies and regulatory processes endorsed by mothers and adolescents on self-report questionnaires adequately reflect their actual behaviors. Self-report measures mainly tap into conscious thoughts and ideas, which may increase the likelihood of self-presentational biases (Garber & Kaminski, 2000). On the other hand, the use of self-report instruments for depression has an important advantage. Self-report is the most direct way of tapping into the subjective experience of the child, which is very important with internalizing problems (Garber & Kaminski, 2000). Other methods (e.g. narratives) may capture aspects of attachment (e.g., unconscious feelings) that self-report scales fail to measure.

Finally, the study is based on cross-sectional data which hindered us to assess the direction of effects in the hypothesized model. Longitudinal

research is needed to more accurately investigate whether depressogenic personality and attachment dimensions play a significant role in the intergenerational transmission of depressive symptoms (as depicted in Figure 1) or whether a reverse model in which similarity in depressive symptoms predicts similarity in depressogenic personality and attachment (i.e., primacy of depression hypothesis) better fits the data. Longitudinal research following participants into late adolescence and early adulthood would also be informative to examine the long-term implications of the processes examined in our model.

### *Conclusion*

The results of this study are generally in line with the notion that intergenerational similarity in depressive symptoms is a function of deeper, more fundamental personality-related and attachment-related processes. Whereas the evidence for this hypothesis was relatively clear-cut for the personality dimensions studied here (i.e., sociotropy and autonomy), for the attachment dimensions we could not rule out the alternative possibility that intergenerational similarity of depressive symptoms accounts for the similarity of attachment dimensions (rather than the other way around). Longitudinal research is needed to further unravel the possible reciprocal dynamics between the intergenerational similarity of depressive vulnerability and depressive symptoms.

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Table 1

*Means, Standard Deviations, and Correlations among Study Variables*

	M	SD	1	2	3	4	5	6	7	8	9
1 Mdepression	6.40	6.20	-								
2 Msociotropy	3.65	0.63	.39***	-							
3 Mautonomy	3.25	0.58	.27***	.41***	-						
4 Manxiety	2.47	0.98	.62***	.35***	.41***	-					
5 Mavoidance	2.76	0.96	.38***	.14*	.31***	.60***	-				
6 Cdepression	8.70	5.28	.13*	.16**	.15**	.22***	.17**	-			
7 Csociotropy	3.84	0.56	.10	.13*	.11*	.18**	.17**	.28***	-		
8 Cautonomy	3.40	0.52	.15*	.16**	.20***	.21***	.21***	.43***	.39***	-	
9 Canxiety	2.04	0.76	.12*	.11	.26***	.20***	.15**	.40***	.24***	.36***	-
10 Cavoidance	2.80	1.00	.07	.05	.20***	.14*	.16**	.38***	.05	.31***	.45***

Note. M = Mother, C = Child. \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

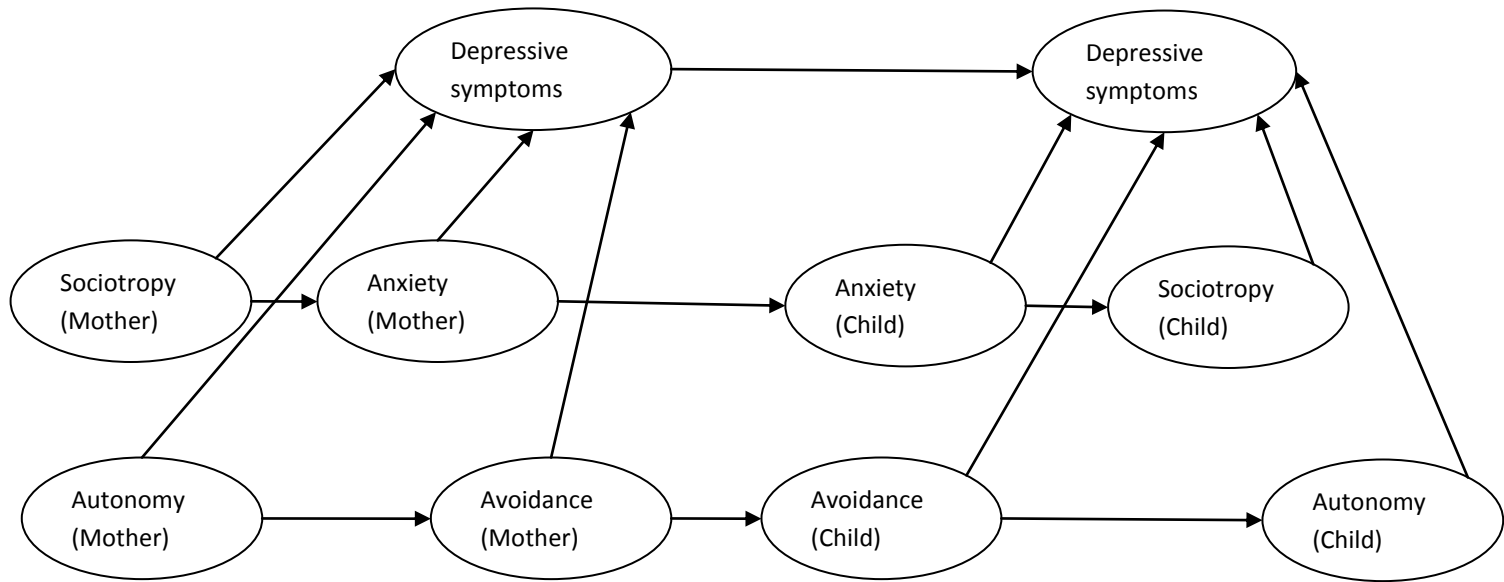


Figure 1. Conceptual model

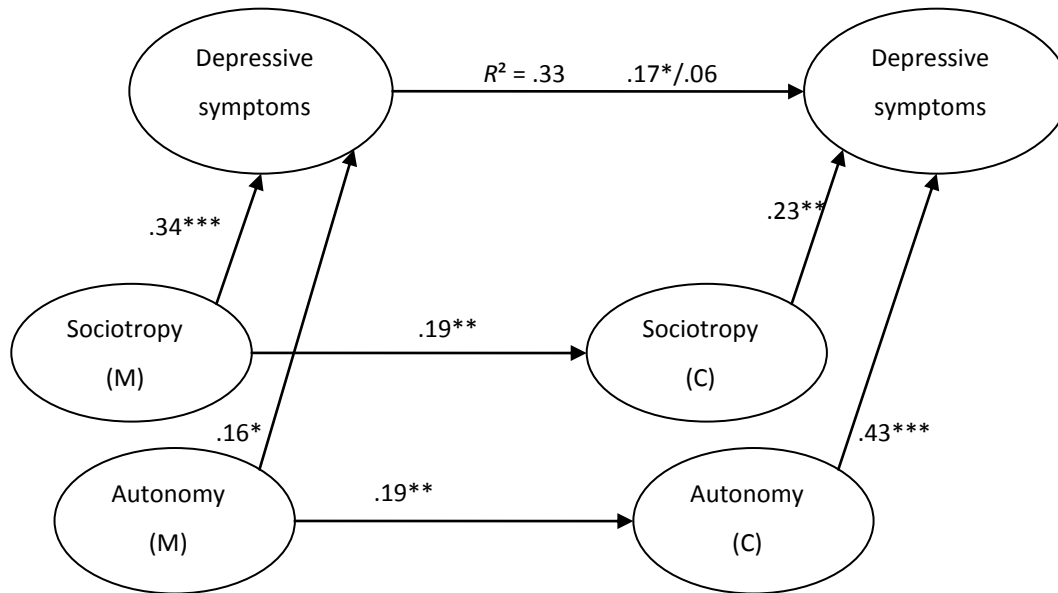


Figure 2. Structural model of the role played by depressogenic personality in the intergenerational similarity of depressive symptoms (Model 2a). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note:  $R^2$  = Explained variance.

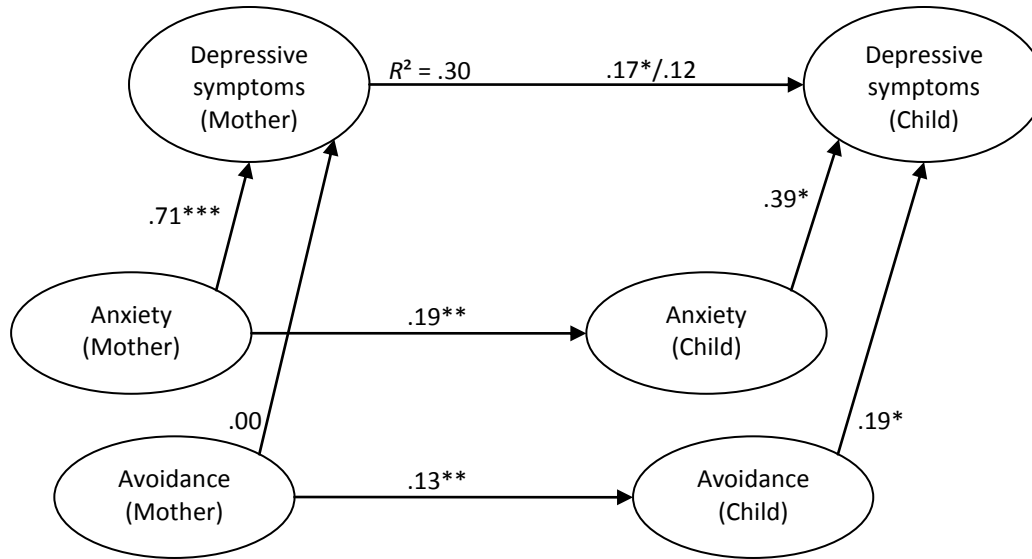


Figure 3. Structural model of the role played by attachment in the intergenerational similarity of depressive symptoms (Model 2b). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note:  $R^2$  = Explained variance.

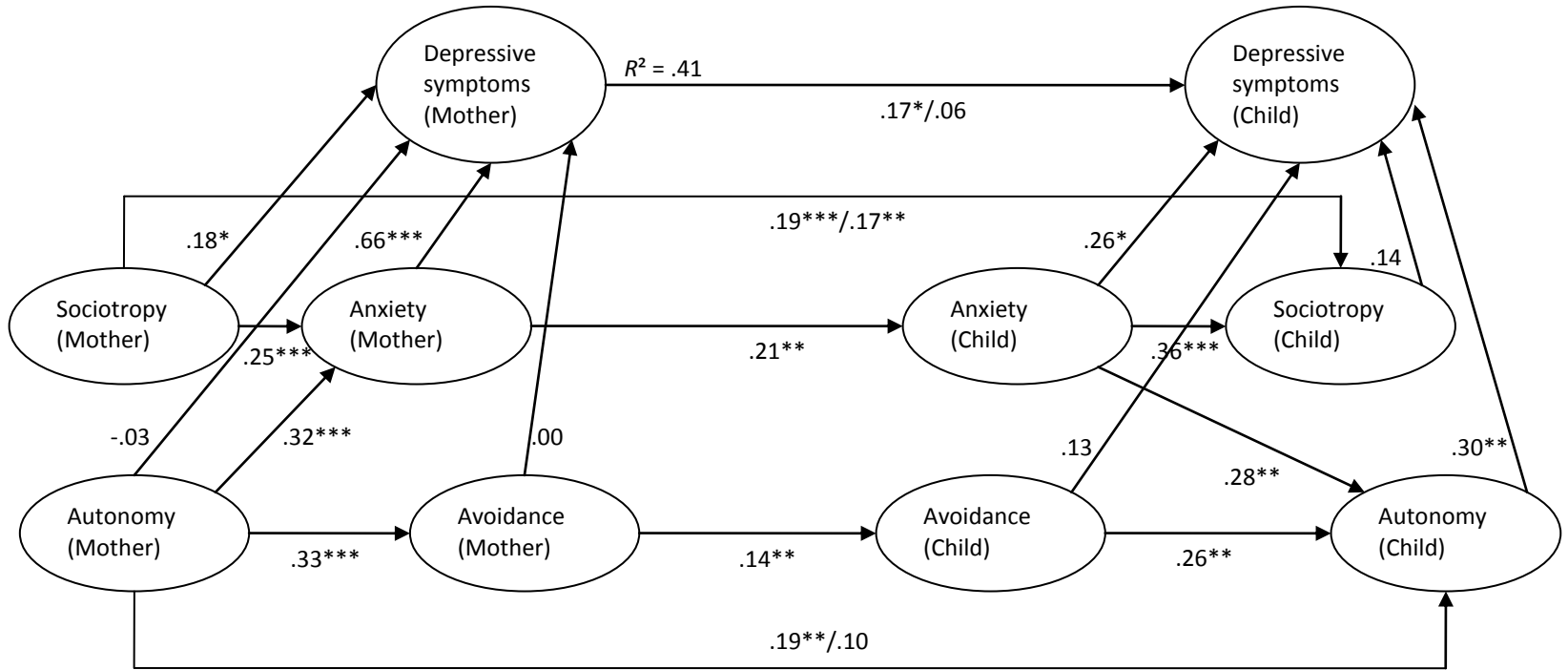


Figure 4. Hypothesized model. Final structural model of the role played by attachment in the intergenerational similarity of depressogenic personality and in turn depressive symptoms (Model 3). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note:  $R^2$  = Explained variance.



## Chapter 4

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### **The Role of Parenting and Mother-Adolescent Attachment in the Intergenerational Similarity of Internalizing Symptoms<sup>1</sup>**

Parental depression has been identified as a risk factor for children's and adolescents' internalizing problems. We aimed to investigate the role of maternal parenting behaviors (i.e., responsiveness and autonomy-support) and adolescents' representations of attachment to their mother (i.e., anxiety and avoidance) in the intergenerational similarity of internalizing symptoms. The sample was heterogeneous and consisted of referred (42%) and non-referred adolescents ( $N = 238$ , 31% female) and their mothers. Both adolescents and mothers reported on internalizing symptoms, parenting behaviors and all adolescents reported on mother-child attachment. Results showed that parenting behaviors and mother-adolescent attachment explain at least part of the intergenerational congruence of internalizing symptoms. Moreover, there were meaningful and specific associations between dimensions of parenting and dimensions of attachment. Higher responsiveness was primarily related to lower avoidance and higher autonomy-support was primarily related to lower anxiety. The current study's results suggest that maternal depressive symptoms relate to maladaptive parenting strategies and insecure attachment representations in adolescents. Further, both attachment anxiety and

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<sup>1</sup> Brenning, K., Soenens, B., Braet, C., & Bal, S. (in press). The Role of Parenting and Mother-Adolescent Attachment in the Intergenerational Similarity of Internalizing Symptoms. [*Journal of Youth and Adolescence*].

avoidance seem to relate positively to adolescents' internalizing symptoms. Targeting both parenting and attachment may form a fruitful approach to prevent and treat internalizing problems in adolescence.

### **Introduction**

Children of depressed parents are often at higher risk for developing internalizing problems (e.g., Goodman & Gotlib, 1999). Numerous scholars have called for research investigating psychological processes that may account for the intergenerational congruence of internalizing psychopathology (Hammen, Shih, & Brennan, 2004). Individual and interpersonal factors (e.g., parents' cognitions, feelings, and behaviors) have been suggested to play a role in the intergenerational transmission (Goodman & Gotlib, 1999). In the current research, we aimed to test an integrated conceptual model in which two central dimensions of maternal parenting behavior (i.e., responsiveness and autonomy-support) and two central dimensions of mother-adolescent attachment representations (i.e., anxiety and avoidance) are considered as possible mediating variables in the intergenerational similarity of internalizing symptoms. This was deemed important because, in spite of solid theoretical and empirical reasons to assume linkages between parenting behaviors and attachment representations, research has tended to examine the role of these factors within separate research lines. Accordingly, in this study we aimed to provide an integrative and more comprehensive picture of how both parenting and attachment-related processes may account for intergenerational similarity in internalizing distress. Specifically, we aimed to do so by examining this research question in a heterogeneous sample of referred and non-referred children.



*Parenting and Attachment as Mediators of Intergenerational Similarity  
of Internalizing Symptoms*

Parental internalizing distress often has been identified as a risk factor for internalizing problems in children and adolescents (e.g., Beardslee, Versage, & Gladstone, 1998; Goodman & Gotlib, 1999). A meta-analysis by Connell and Goodman (2002) examining the association between parents' and children's internalizing symptoms showed that most of the population effect sizes were significant but rather small in magnitude (weighted mean  $r = .18$ ). The intergenerational congruence of internalizing problems seems to be moderated by variables such as children's gender and age. In contrast, it was found that this effect size does not depend on whether the sample includes participants from referred or community populations. The latter finding suggests that both minor levels of internalizing symptoms and clinically elevated levels of psychopathology transmit across generations (Connell & Goodman, 2002). Accordingly, there is a need to examine processes that may account for this intergenerational similarity.

It has been noted in the literature that both parenting behaviors (e.g., Barber & Harmon, 2002; Barber, Stolz, Olsen, & Maughan, 2005) and attachment representations (e.g., Brenning, Soenens, Braet, & Bosmans, 2011 a; Mikulincer & Shaver, 2007) are important factors in explaining the development of internalizing symptoms. However, the roles of parenting and attachment in the intergenerational congruence of internalizing problems most often have been examined separately, thus resulting in a compartmentalized picture of dynamics in the intergenerational similarity of internalizing problems. In recent research, calls have been made for more integrative studies addressing the role of multiple factors involved in the intergenerational similarity of internalizing distress. Goodman and Gotlib (1999), for instance, proposed four mechanisms for understanding the transmission of internalizing

symptoms, that is, genetic transmission, neuroregulatory mechanisms, contextual stressors, and the child's exposure to the mother's maladaptive affect, behavior, and cognitions. The latter central mechanism involves the role of both parenting behaviors and attachment representations as underlying processes in the transmission of internalizing problems. According to Goodman and Gotlib (1999), internalizing distress in the parent is associated with negative parental feelings, behaviors and thoughts, which would make the parent unable to meet the child's social and emotional needs. In turn, this inadequate parenting would negatively affect the child's development of social-cognitive representations of others, as manifested in insecure attachment representations. Finally, insecure attachment representations would convey a risk for developing internalizing problems. Clearly, Goodman and Gotlib (1999) called for research in which the role of parenting behaviors and attachment representations in the intergenerational similarity of internalizing problems would be examined simultaneously. The aim of this study was to heed this call. In doing so, we chose to adopt a multidimensional approach to both parenting and attachment.

### *Parenting*

Two fundamental parenting dimensions are central in recent parenting research, that is, responsiveness and autonomy-support. Responsiveness refers to the parent's capacity to interact with children in a warm, affectionate, and involved fashion (Davidov & Grusec, 2006), and to provide security when a child experiences discomfort or stress (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). Parents with low scores on responsiveness are perceived by children as cold, distant, and unavailable. Autonomy-support refers to the parents' capacity to encourage their children to behave on the basis of self-endorsed motives and preferences and, as such, to promote volitional functioning in their children (Grolnick, Deci, & Ryan, 1997; Soenens,

Vansteenkiste, et al., 2007). Specifically, autonomy-supportive parents try to know and understand the perspective of their children (i.e., empathy), they avoid the use of pressuring tactics to regulate the behavior of their children, and they provide choices whenever possible (Ryan, Deci, Grolnick, & LaGuardia, 2006). Parents with low scores on autonomy-support are often highly controlling and pressure their children to act, think, and feel in particular ways. Controlling parents, and psychologically controlling parents in particular, use manipulative techniques like guilt induction, shaming, and conditional loving to pressure their children (Barber & Harmon, 2002; Soenens & Vansteenkiste, 2010). Because both responsiveness and autonomy-support are considered essential features of the quality of parenting style, we considered the role of both parenting behaviors in the intergenerational congruence of internalizing symptoms.

Previous research provides mainly indirect evidence for the role of parenting in the intergenerational similarity of internalizing distress. Parents with depressive symptoms indeed show more inadequate parenting as compared to non-depressed parents. For example, parents who suffer from depressive and internalizing symptoms are less responsive to their child, use more controlling, punishing parenting behaviors, are less autonomy-supportive, and have more conflicts with their children (Blatt & Homann, 1992; Gelfand & Teti, 1990; Goodman & Gotlib, 1999; Jacob & Johnson, 2001; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Miller, Birnbaum, & Durbin, 1990; Rakow et al., 2011). A literature review by Dix and Meunier (2009) identified 13 underlying processes thought to be responsible for the relationship between parental depression and maladaptive parenting, including depressed parents' tendency to be absorbed by their own negative affect and their inability to attune to their children's needs and feelings. In turn, inadequate parenting has been shown to be associated with children's internalizing symptoms.

Specifically, autonomy-suppressing and psychologically controlling parenting has been shown to be a particularly strong predictor of children's and adolescents' internalizing problems (e.g., Barber & Harmon, 2002; Soenens & Vansteenkiste, 2010). For instance, in a review of relevant research, Alloy, Abramson, Smith, Gibb and Neeren (2006) reported fairly consistent evidence that parenting characterized by both low care (i.e., low responsiveness) and high psychological control (i.e., low autonomy-support) is associated with children's internalizing symptoms. Thus, research suggests that parental internalizing distress is related to inadequate parenting which is, in turn, related to internalizing distress in children.

Although studies have addressed parts of the assumed mediational role of parenting in the intergenerational similarity of internalizing problems, few studies provided direct evidence for this mediational role. Hammen and colleagues (2004) found that the relationship between maternal depression and youth depression is largely mediated through parenting quality (generally conceptualized as the child's perception of maternal hostility and psychological control). Further, Rakow and colleagues (2011) found support for the role of parental guilt induction, which is a subcomponent of psychological control, in the association between parental depressive symptoms and children's internalizing problems. The role of parenting in the intergenerational similarity of internalizing symptoms also was supported indirectly in several studies on the transmission of personality vulnerability to depression. For example, research found evidence for autonomy-suppressing (controlling) parenting and for parenting lacking in warmth as intervening variables in the relationship between parents' and adolescents' self-critical perfectionism (e.g., Ahmad & Soenens, 2010; Amitay, Mongrain, & Fazaa, 2008; Soenens et al., 2005). Together then, findings provide preliminary evidence for the role of parenting in the intergenerational congruence of internalizing symptoms.

*Attachment*

According to attachment theory, each individual develops an attachment style based on interpersonal experiences with caregivers (Bowlby, 1980, 1988; Fraley & Shaver, 2000). In recent research, two continuous dimensions (i.e., attachment anxiety and avoidance) have been forwarded as the best way to model attachment (Brennan, Clark, & Shaver, 1998; Fraley & Spieker, 2003). Attachment anxiety involves preoccupation with social support, jealousy, and fear and vigilance concerning abandonment and rejection. Attachment avoidance involves avoidance of intimacy, discomfort with closeness, and excessive self-reliance (Brennan et al., 1998). Bowlby (1973, 1980) postulated that the loss of secure attachment during infancy, childhood, or adolescence contributes to the development of internalizing problems. This loss can be due to the death of a primary attachment figure or to repeated failure to form a secure relationship with a caregiver. This would lead to the formation of pessimistic, hopeless representations of the self and others that would, in turn, increase the vulnerability for psychopathology.

Ample evidence in both children and adults supports a relationship between individuals' representations of attachment anxiety and avoidance and internalizing problems (Mikulincer & Shaver, 2007; Muris, Meesters, van Melick, & Zwambag, 2001). However, research directly examining the role of attachment in the intergenerational transmission of internalizing symptoms during adolescence is scarce (e.g., Besser & Priel, 2005; Brenning, Soenens, Braet, & Bosmans, 2011 a). For example, Brenning and colleagues (2011 a) found that adolescents' representations of both attachment anxiety and avoidance could account, at least partially, for the association between mothers' and adolescents' depressive symptoms. Given the scarcity of studies on the role of attachment in the intergenerational similarity of internalizing distress during adolescence, more research is needed. More importantly, it

seems timely to integrate research on the role of attachment in the intergenerational similarity of internalizing distress with research on the role of parenting.

### *An Integrated Examination of Parenting and Attachment*

As discussed in the preceding paragraphs, theory and research recognize the importance of parenting and attachment in explaining the development of internalizing symptoms. Attachment theory provides a strong basis to make predictions about the role of parenting in children's attachment style, thus providing opportunities to integrate both research lines. To promote a secure attachment relationship, parents need to comfort, sooth, and protect their children in times of stress (i.e., function as a safe haven by being responsive; Bowlby, 1988), but also need to permit and support autonomous action and exploration (i.e., function as a secure base from which the child can explore by supporting the child's autonomy; Ainsworth, 1969). This distinction between the safe haven and secure base function is analogous to the distinction between the two fundamental parenting dimensions that are central in recent parenting research, that is, responsiveness and autonomy-support. Research indeed provided evidence for the importance of both sensitiveness (which is analogous to responsiveness) and autonomy-support in infant attachment (e.g., Whipple, Bernier, & Mageau, 2011 a).

On the basis of attachment theory (Bowlby, 1988), a unique pattern of parenting correlates can be expected for each of the two attachment dimensions (i.e., anxiety and avoidance). Children who experience unresponsive (i.e., low responsiveness) or intrusive (i.e., low autonomy-support and high psychological control) caregiving may have difficulty trusting that others will be appropriately available for them, and therefore learn to be self-reliant and to avoid depending on others (Crowell & Treboux, 1995). As a consequence, avoidant attachment would be related to low parental warmth

and low autonomy-support. Anxious attachment is thought to be related to a slightly different pattern of parenting dynamics. Children high on attachment anxiety would not experience their caregivers as consistently low on warmth and support but would instead experience caregivers as inconsistent in providing responsiveness. Children may become fearful of abandonment due to the unpredictability in their parents' display of love and support (e.g., Hill, Fonagy, Safier, & Sargent, 2003). Further, anxious attachment is also thought to arise when care is intrusive (i.e., low on autonomy-support) because those experiences leave the child uncertain of his or her own worth and competence (negative self) (Bartholomew & Horowitz, 1991). In sum, anxious attachment would not necessarily relate to low maternal warmth, yet would relate to parenting low in autonomy-support.

In line with this theorizing, research in middle childhood and adolescence has shown that a lack of responsiveness is most consistently related to children's and adolescents' representations of attachment avoidance (e.g., Brenning, Soenens, Braet, & Bosmans, in press; Güngör & Bornstein, 2010; Karavasilis, Doyle, & Markiewicz, 2003; Kerns, Tomich, Aspelmeier & Contreras, 2000). Instead, autonomy-suppressing and controlling parenting are most consistently associated with children's and adolescents' perception of attachment anxiety (e.g., Güngör & Bornstein, 2010; Karavasilis et al., 2003). Research thus supports the notion that the two dimensions of parenting behavior are related relatively uniquely and differentially to the two dimensions of attachment representations. Still, there is some inconsistency in extant research regarding the role of autonomy-support. Whereas some studies have shown that autonomy-support is unrelated to attachment avoidance (e.g., Güngör & Bornstein, 2010), other studies have shown that low autonomy-support does relate to attachment avoidance (e.g., Brenning et al., in press). The present study adds to this literature by providing new data

involving all four dimensions of parenting and attachment simultaneously (i.e., responsiveness, autonomy-support, attachment anxiety, attachment avoidance). More importantly, this study addressed the simultaneous role of the two dimensions of parenting behavior and the two dimensions of attachment representations in the intergenerational congruence of internalizing symptoms.

### *The Present Study*

The aim of the current research is to investigate whether parenting behaviors (i.e., responsiveness and autonomy-support) and adolescent representations of attachment anxiety and avoidance would account at least partially for the intergenerational similarity of internalizing symptoms. During adolescence, both internalizing problems and dynamics of parenting and attachment are salient and susceptible to change. For instance, research has shown that the transition from middle childhood and pre-adolescence to early adolescence is marked by a steep increase in the prevalence of internalizing symptoms (Petersen et al., 1993). Further, parenting behaviors are expected to remain highly important after childhood as adolescence is a life-period that is typically characterized by multiple challenging developmental tasks (Steinberg, 2002). Parental support and encouragement of autonomy are considered vital resources for adolescents to navigate through this challenging developmental period (Grolnick et al., 1997). Adolescence is also a transitional period for the attachment system. Although parents continue to figure as a secure base in times of stress, there is a changing balance between attachment and exploratory behavior (Allen, 2008). In sum, adolescence was considered a highly relevant age period for the current study's research aims.

The role of parenting behaviors and adolescents' attachment representations in the intergenerational similarity of internalizing symptoms was tested in a heterogeneous sample of both referred and non-referred



adolescents and their mothers. Our main reason for using such a heterogeneous sample was to increase the variance in both internalizing symptoms, quality of parenting, and attachment. Previous research indeed showed that referred individuals report more psychopathology, inadequate parenting and insecure parent-child relationships compared to a non-referred group (e.g., Dollberg, Feldman, & Keren, 2010). An ancillary aim of this study was to replicate these mean-level differences between referred and non-referred adolescents. Further, this approach allowed us to examine whether parenting and attachment are related to both sub-threshold (non-clinical) symptoms as well as clinically elevated internalizing symptoms. In other words, this heterogeneous sample allowed us to examine whether the structural associations in the hypothesized model would be similar or different for referred and non-referred youth. Thus, we also explored whether adolescents' clinical status (referred versus non-referred) would play a moderating role in the integrated model.

## **Method**

### *Participants*

The sample consisted of Caucasian participants and included both a referred adolescent patient group and their mothers and a community group of adolescents and their mothers. The referred group consisted of 99 adolescent patients (27 female, 72 male) from different mental health care centers in the Flemish part of Belgium: 35 patients from a psychiatric ward in a general hospital, 42 inpatients and 22 outpatients from public mental health care centers. Across institutions, around 129 referred adolescents were asked to participate and approximately 77% agreed to take part. The patients' age ranged from 10 to 18 years ( $M = 14.28$ ,  $SD = 1.91$ ). Regarding level of education, 31.58% of the referred adolescents were following an academic

track (i.e., were preparing for college or university studies), whereas the remaining participants were preparing for technical proficiencies. In terms of family structure, 52.58% of the participants came from intact families, whereas the remaining participants were from divorced families or families where one of the parents was deceased. Some of the non-intact families included a step-parent whereas others were single parent families. Either way, adolescents' biological mothers were asked to complete the questionnaires. Mothers ( $N = 75$ ) had a mean age of 43 years, with a range between 33 and 62 years. Regarding educational level, 32.4% of the mothers completed secondary school, 32.5% had a bachelor's degree diploma, and 12.2% attained a master's degree diploma.

The non-referred group of adolescents was matched to the referred sample according to adolescents' gender, age, study level and family structure. Across several schools, 191 students were contacted for this study and approximately 72% agreed to take part. The community sample eventually consisted of 139 participants from 4 secondary schools in Flanders (Belgium) (47 female, 92 male). Students' ranged in age from 11 to 20 years ( $M = 14.59$ ,  $SD = 1.97$ ). Regarding level of education, 48.55% of the non-referred participants were following the academic track, whereas the remaining participants were preparing for technical proficiencies. In terms of family structure, 61.48% of the participants came from intact families. The mothers ( $N = 94$ ) had a mean age of 43 years, with a range between 32 and 55 years. Regarding educational level, 32.1% of the mothers completed secondary school, 42.2% had a bachelor's degree diploma, and 7.3% attained a master's degree diploma.

When comparing the referred and non-referred sample, no significant differences were found on the matching criteria (Pearson  $\chi^2 = 1.24$ ,  $p > .05$ ,  $t = -1.19$ ,  $p > .05$ , Pearson  $\chi^2 = 5.82$ ,  $p > .05$ , Pearson  $\chi^2 = 1.83$ ,  $p > .05$  for gender,

age, education level, and family structure, respectively). As expected, the referred and non-referred samples did differ in terms of prevalence of internalizing problems, with referred children scoring higher on internalizing symptoms as reported by both adolescent [ $F(1, 223) = 16.95, p < .001$  and  $F(1, 223) = 14.88, p < .001$  for CDI and YSR, respectively] and mother [ $F(1, 223) = 77.27, p < .001$ ].

### *Procedure*

The Ethical Committee of Ghent University (Belgium) and the Ghent University Hospital both reviewed and approved the protocol of this study. Youth between 10 and 20 years of age and their mothers were asked to complete the questionnaires concerning internalizing feelings and parent-adolescent interactions. The survey, which could take place at home or in a clinical or school setting, took approximately one hour. After explanation of the objectives and procedure of the study, informed consent was obtained from adolescents and their parents. Children's questionnaires were administered by trained clinical psychology students or trained psychologists. Participation was rewarded with one cinema ticket per adolescent and per participating mother.

### *Measures*

Parenting behavior and adolescents' attachment representations were assessed in the context of the mother-child relationship as this relationship is one of the most central and important relationships during this age period (Allen, 2008). The present study used a multi-informant approach (i.e., adolescent and mother report) to measure parenting dimensions and adolescents' internalizing symptoms. Using different sources of information in examining the issue of intergenerational transmission has different advantages (e.g., Simons, Whitbeck, Conger, & Chyi-In, 1991). First, a multi-informant approach reduces problems associated with common method

variance. Measuring all study variables using a single source report may inflate associations between constructs because each person is characterized by certain dispositions or global personality traits that may color the respondent's judgments. Second, the use of several sources of information is advised because individual respondents may underreport socially undesirable information (e.g., autonomy-suppressing parenting). As respondents often tend to underreport the frequency of more negative phenomena, the validity and variance of the measure will decrease if only a single reporter is used. One way to address this problem is to utilize multiple sources of data (i.e., parents and adolescents) and then to use structural equation estimations procedures that estimate the variance common to parent and adolescent reports. As will be detailed below, using path analysis with latent factors, both types of reports were combined into multi-informant scores that reflect the variance common to mother and adolescent reports.

#### *Mother depressive symptoms*

Mothers were administered the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), a widely used and well-validated self-report measurement for assessing the severity of depressive symptomatology in adults. Respondents were asked to rate each of 21 depressive symptoms on a scale ranging from 0 (*not present*) to 3 (*severe*) in terms of how they have been feeling during the past two weeks. The BDI-II is designed to provide a single overall score that can range from 0 to 63. Beck et al. (1996) reported excellent internal consistency and good convergent validity. In this study, the alpha coefficient was .94.

#### *Adolescent internalizing symptoms*

Adolescents' internalizing symptoms were measured with both child report and mother report measurements. Adolescents were administered the Children's Depression Inventory (CDI; Kovacs, 1985; Dutch translation by

Timbremont, Braet, & Roelofs, 2008), which is an adaptation of the Beck Depression Inventory for use with children and adolescents. This self-report scale includes 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. Each item is then scored from 0 (*symptom is absent*) to 2 (*symptom is present most or all the time*), resulting in a range of total scores from 0 to 54. Acceptable levels of internal consistency, validity and test-retest reliability have been established (Kovacs, 1985). The validity and psychometric qualities have also been demonstrated in research with adolescents from both clinical and non-clinical samples (e.g., Roelofs et al., 2010). In the current study, Cronbach's alpha was .81.

Further, the Youth Self Report and the Child Behavior Checklist (YSR and CBCL; Achenbach & Rescorla, 2001) were administered as measures of emotional and behavioural problems in children and adolescents as reported by the child and mothers, respectively. The YSR and CBCL include 31 and 32 internalizing items, respectively, which are scored on a scale ranging from 0 (*not at all*) to 2 (*very much*). For both questionnaires, a global internalizing symptomatology score is obtained. Items on externalizing symptoms were not administered. Reliability and validity of both questionnaires have been established (Achenbach & Rescorla, 2001). Cronbach alphas in the present study were .91 and .85 for the YSR and CBCL internalizing problem scale, respectively.

#### *Parental responsiveness and autonomy-support*

Parenting dimensions were measured with several well-validated questionnaires. To assess responsiveness, adolescents and their mothers were both administered the same 7-item version of the acceptance/rejection subscale from the revised Child Report on Parenting Behavior Inventory (CRPBI; Schaefer, 1965). Sample items, for adolescent and parent report respectively,

read: “My mother is able to make me feel better when I am upset” and “I am able to make my child feel better when my child is upset”. All items were scored on a scale ranging from 1 (*not at all*) to 5 (*very much*). The acceptance/rejection scale from the CRPBI, and the adapted 7 item version of this scale more specifically, have been used as valid and reliable measures of responsiveness as reported by both parents and adolescents in past research (Barber et al., 2005; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006). In this study, Cronbach’s alpha was .93 and .76 for adolescent and parent report, respectively.

To assess autonomy-supportive (versus controlling) parenting in an encompassing fashion, we administered the 7-item ‘Autonomy-support’ scale of the Perceptions of Parents Scale (POPS; Grolnick, Ryan, & Deci, 1991; “My mother, whenever possible, allows me to choose what to do” and “Whenever possible, I allow my child to choose what to do”) and the 8-item Psychological Control Scale – Youth Self Report (PCS-YSR; Barber, 1996; e.g. “My mother is always trying to change how I feel or think about things”). The psychometric quality and validity of both scales, as reported by both parents and adolescents, is well-established (Barber et al., 2005; Grolnick et al., 1991; Soenens et al., 2007). As in previous studies (e.g., Soenens & Vansteenkiste, 2005), a single composite score for autonomy-support versus psychological control was computed by reverse-scoring the psychological control items and by averaging the scores of the autonomy-support and (reverse-scored) psychological control items. All items are scored on a scale ranging from 1 (*not at all*) to 5 (*very much*). Cronbach alphas of this scale were .89 and .74 for adolescent and parent report, respectively.

#### *Attachment dimensions*

Adolescents completed a child version of the Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller & Brennan, 2000). This self-

report questionnaire was originally designed to assess romantic insecure attachment dimensions but was recently adapted to assess parent-child attachment. The Experiences in Close Relationships Scale-Revised Child version (ECR-RC; Brenning, Soenens, Braet, & Bosmans, 2011 b) consists of 36 statements about the children's mother. More specifically, 18 anxiety items tap into feelings of fear of abandonment and strong desires for interpersonal merger (e.g., "I worry about being abandoned by my mother") and 18 avoidance items tap into discomfort with closeness, dependence, and intimate self-disclosure (e.g., "I prefer not to show my mother how I feel deep down"). Items are rated on a 7-point scale ranging from "not at all" to "very much". Both subscales displayed strong internal consistency and construct and predictive validity in previous research with both children and adolescents (Brenning et al., 2011 a; Brenning et al., 2011 b). Cronbach's alpha of the ECR-RC in the current study was .90 and .94 for anxious and avoidant attachment, respectively.

#### *Treatment of Missing Values*

To maximize sample size in the referred and non-referred sample, cases with missing values were included in the analyses by estimating missing data. Participants with and without complete data were compared using Little's (1988) Missing Completely At Random (MCAR) test. A  $\chi^2/df$  ratio value of 2 or less suggests that missing values can be estimated reliably. Comparison of means and covariances of all variables, revealed a  $\chi^2/df$  ratio of 0.94, suggesting that the data were missing completely at random. Therefore, missing values were estimated using maximum likelihood estimation (Schafer, 1997) and the expectation maximization (EM) algorithm available in SPSS. This procedure resulted in a complete sample of 238 participants.

## Results

### *Descriptive Statistics and Preliminary Analyses*

Table 1 presents correlations between all the study variables. Maternal internalizing symptoms were positively related to adolescents' internalizing symptoms. Maternal internalizing symptoms were also related to low mother and adolescent reported autonomy-support and to low mother reported responsiveness. Maternal autonomy-support and responsiveness were, in turn, inversely related to adolescents' internalizing symptoms and to adolescents' representations of attachment anxiety and avoidance. These relations occurred irrespective of type of reporter. Both anxious and avoidant attachment were related positively to adolescents' internalizing symptoms.

Next, differences in the study variables in terms of adolescents' age, gender, family and clinical status (referred versus non-referred sample) were examined by a multivariate analysis of variance. A significant overall effect of all background variables was found on the study variables [Wilks' Lambda  $F(10, 214) = 3.03, p < .01$ ;  $F(10, 214) = 2.21, p < .05$ ;  $F(60, 1126.27) = 1.67, p < .01$ ;  $F(10, 214) = 9.34, p < .001$  for age, gender, family structure, and clinical status, respectively]. None of the two way interactions between the background variables had a significant effect.

Table 2 shows means and standard deviations of all study variables by adolescents' gender, family structure, and clinical status. Gender had a significant effect on adolescents' internalizing symptoms (as measured by both the CDI, YSR and CBCL), with girls displaying more internalizing symptoms than boys. Further, girls reported less maternal responsiveness and higher avoidant attachment than boys. Next, family status had a significant effect on all of the study variables, with the exception of responsiveness as reported by mother and adolescents' anxious attachment. Adolescents and mothers from non-intact families reported more maternal and child internalizing symptoms,



maladaptive parenting scores, and avoidant attachment in children. Finally, clinical status had a significant effect on all study variables, with the exception of mother depressive symptoms (on which clinical status had only a marginally significant effect). The referred group of adolescents and their mothers reported more adolescent internalizing symptoms, lower scores on responsive and autonomy-supportive parenting, and more insecure attachment in adolescents.

In addition, correlations were computed between age and all study variables. The results showed a significant correlation between adolescents' age and adolescents' report of both responsiveness ( $r = -.24, p < .001$ ) and autonomy-support ( $r = -.14, p < .05$ ), with older adolescents reporting less adaptive parenting behaviors. Further, results showed a significant correlation between adolescents' age and both anxious ( $r = .15, p < .05$ ) and avoidant attachment representations ( $r = .21, p < .01$ ), with older adolescents reporting higher insecure attachment scores. Given the significant associations of the background variables (gender, age, family structure, and clinical status), we controlled for the effects of these variables in all main analyses.

#### *Primary Analyses: Structural Equation Modeling*

To estimate structural associations between the study variables while controlling for error variance, Structural Equation Modeling (SEM) with latent variables was conducted using LISREL 8.7 (Jöreskog & Sörbom, 1996). The primary analyses followed the two-step procedure recommended by Anderson and Gerbing (1988). First, a confirmatory factor analysis (CFA) was used to test the quality of the measurement model of the study constructs. Second, a series of structural models was tested. As suggested by Hu and Bentler (1999), we used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) as goodness of fit indices. Combined cutoff values of 0.90 for CFI and 0.08 for RMSEA indicate reasonable fit (Kline, 2005). Finally,

we used the corrected scaled chi-square difference test to compare nested models. Data screening indicated partial non-normality of a number of indicators and, therefore, we used the asymptotic covariance matrix as input and inspected the Satorra-Bentler scaled chi-square (SBS- $\chi^2$ ; Satorra-Bentler, 1994). We controlled for the effects of the background variables (i.e., adolescents' age, gender, family structure, and clinical status) in all primary analyses by allowing paths from each of these four variables to all the constructs included in the structural models.

#### *Measurement model*

To model the six latent variables in the measurement model (maternal as well as adolescents' internalizing symptoms, responsiveness, autonomy-support, attachment anxiety and avoidance), three to six parcels or indicators were created for each construct (see Figure 1). According to Marsh, Hau, Balla, and Grayson (1998), parceling has some advantages with respect to the modeling of latent factors. For example, parceling results in a smaller number of indicators per latent factor. Further, individual parcels are likely to have a stronger relation to the latent factor, are less likely to be influenced by method effects, and are more likely to meet the assumptions of normality. For maternal internalizing symptoms and adolescents' attachment representations three parcels were created, each consisting of a set of randomly selected items. To model adolescent internalizing symptoms, three different measures of internalizing problems in children were used. More specifically, two adolescent-report measures (i.e., CDI and YSR) and a mother-report questionnaire (i.e., CBCL) were used as different indicators for the latent construct of adolescents' internalizing symptoms. Regarding parenting, both responsiveness and autonomy-support were presented by six parcels, three of which consisted of a set of randomly selected adolescent-reported items (i.e., parcel 1, 2 and 3) and three of which consisted of a set of mother-reported

items (i.e., parcel 4, 5 and 6). No cross-loadings were allowed. The measurement model (SBS- $\chi^2(307) = 848.66$ ; CFI = .94; RMSEA = .09) had 24 indicators with significant ( $p < .001$ ) and moderate to strong loadings on the six latent factors, ranging from .32 to .95 (mean  $\lambda = .73$ ).

*The role of parenting and attachment in the intergenerational similarity of internalizing symptoms.*

In a first structural model, we examined the intergenerational similarity of internalizing symptoms. Estimation of this model (SBS- $\chi^2(26) = 22.11$ ; CFI = 1.00; RMSEA = .00) showed that, controlling for adolescents' age, gender, family structure, and clinical status, maternal internalizing symptoms were significantly related to adolescents' internalizing symptoms ( $\beta = .26, p < .001$ ). In a second structural model, parenting behavior and adolescents' attachment representations were entered simultaneously as intervening variables between mothers' and adolescents' internalizing symptoms. Estimation of this model (SBS- $\chi^2(327) = 635.87$ ; CFI = .97; RMSEA = .06), depicted in Figure 1, showed that the direct effect of maternal internalizing symptoms on adolescents' internalizing symptoms decreased from .26 to .20 when taking parenting and attachment into account. Most of the hypothesized paths were significant. Maternal internalizing distress was significantly related to low responsiveness and low autonomy-support. Low responsiveness was significantly related to adolescents' avoidant attachment, whereas low autonomy-support showed a significant association with representations of attachment anxiety. Further, both dimensions of insecure attachment were significantly related to adolescents' internalizing symptoms. We additionally examined the direct association between responsiveness and autonomy-support on the one hand, and adolescents' internalizing symptoms on the other hand. Both associations turned out non-significant after including attachment as a mediator variable ( $\beta = .23, p > .05$  and  $\beta = .09, p > .05$  for responsiveness and autonomy-support,

respectively) and were not included in the final model. A Sobel test (Sobel, 1982) showed that the indirect effect of mother internalizing symptoms on adolescent internalizing symptoms through parenting and attachment was significant ( $t = 2.43, p < .05$ ). Together, these findings indicate that the association between mother and adolescent internalizing symptoms was partially mediated by dimensions of maternal parenting and mother-adolescent attachment.<sup>2</sup>

*Ancillary research question: Moderation by adolescents' clinical status*

To examine whether adolescents' clinical status (referred versus non-referred) plays a role as a moderator variable in the final structural model, a multigroup analysis was conducted. When comparing a constrained model (in which the modeled pathways were set to be invariant across groups) with an unconstrained model (in which these parameters were freely estimated across groups), no significant differences were found between the model for clinically referred and non-clinically referred adolescents ( $\Delta\text{SBS-}\chi^2(9) = 10.55, p > .05$ ). As such, no evidence was found that associations in the final structural model differed between the referred and non-referred group.

## Discussion

Depression in parents has been identified as a risk factor for children's and adolescents' internalizing problems (e.g., Connell & Goodman, 2002). Recent research increasingly aims to identify underlying psychological processes that may explain the intergenerational similarity in internalizing psychopathology (e.g., Goodman & Gotlib, 1999). Both parenting (e.g., Hammen et al., 2004) and attachment (e.g., Brenning et al., 2011 a) have been

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<sup>2</sup> One might wonder whether the results would remain the same (a) without including mother's report of adolescents' depressive symptoms (CBCL) as an indicator of the latent factor for adolescents' internalizing symptoms, or (b) when using manifest variables instead of latent factor scores. We performed analyses to examine both possibilities and found in both cases that the results remained largely similar.

recognized as potential mediating factors. However, parenting and attachment have typically been investigated in separate research lines. As there are solid reasons to assume that these factors are linked with each other (see attachment theory, Bowlby 1988; Güngör & Bornstein, 2010), the main aim of this study was to investigate the role of both parenting and attachment in the intergenerational similarity of internalizing symptoms in a heterogeneous sample of both referred and non-referred participants.

First, the intergenerational similarity of internalizing symptoms per se was investigated. We found a significant association between mothers' and adolescents' internalizing symptoms. The size of this association ( $\beta = .26$ ) was somewhat higher than the weighted mean effect size obtained in the Connell and Goodman (2002) meta-analysis ( $r = .18$ ). This could possibly be explained by the current study's reliance on a multi-informant assessment of adolescents' internalizing symptoms. This approach is thought to control for reporter bias and to result in a more accurate and valid estimation of internalizing symptoms (e.g., Kendall et al., 1989). Another possible reason why we obtained a somewhat larger coefficient for intergenerational similarity than previous research could be the inclusion of both referred and non-referred participants. This resulted in a broad sample that covers the whole spectrum from low to severe internalizing symptoms. A comparison of mean-level differences between both groups indeed showed that referred adolescents and their mothers reported more adolescent internalizing symptoms. In addition, referred adolescents also reported more insecure attachment and lower scores on responsive and autonomy-supportive parenting. This set of findings is in line with previous research on mean-level differences regarding internalizing problems, attachment and parenting (e.g., Dollberg et al., 2010; Van Leeuwen, Mervielde, De Clercq, & De Fruyt, 2007). It also shows that we were successful in obtaining a heterogeneous sample of adolescents with substantial variability

in each of the study constructs.

In light of the significant mother-adolescent similarity of internalizing symptoms, it was deemed useful to examine whether this similarity is accounted for by parenting and attachment. The association between mothers' and adolescents' internalizing symptoms showed a small to moderate decrease when taking into account the role of parenting behavior and associated anxious and avoidant attachment representations. As expected, maternal depressive symptoms were associated with low responsiveness and low autonomy-support. These associations might be due to several of the underlying processes suggested by Dix and Meunier (2009). For example, maternal depressive symptoms could be associated with low responsiveness and low autonomy-support due to the fact that depressive mothers tend to pursue parent-oriented goals at the expense of child-oriented goals. The heightened distress of mothers with depressive symptoms may create a strong motivation to reduce this distress. This orientation towards one's personal distress may reduce mothers' involvement with children (low responsiveness) and may lead to a decreased focus on children's interests, thus providing little opportunities for autonomy-support. In addition, maternal depressive symptoms may be related to low responsiveness and autonomy-support because both parenting behaviors require much energy, while depression is known to involve a lack of energy and vitality. Further research is needed to investigate these and other underlying mechanisms of the associations between maternal depressive symptoms and inadequate parenting behaviors.

Next, responsiveness and autonomy-support showed unique associations with adolescents' representations of attachment avoidance and attachment anxiety, respectively. These specific relationships between parenting dimensions and dimensions of attachment were generally consistent with previous research (e.g., Whipple, Bernier, & Mageau, 2011 b; Güngör &

Bornstein, 2010). Adolescents who experience a cold and rejecting parental attitude (low responsiveness), learn that their parents are not available in times of stress. This negative view of the attachment figure is characteristic of avoidant attachment. The finding that responsiveness was unrelated to anxious attachment is consistent with the reasoning that children high on attachment anxiety do not necessarily experience their parents as chronically low in responsiveness. Instead, parents of children with anxious attachment representations would be relatively more unpredictable in their display of love and support and this inconsistent display of responsiveness would, in turn, increase children's anxiety about losing their parents' support. Low parental autonomy-support was found to be uniquely associated with anxious attachment. Autonomy-suppressing and controlling caregiving may leave the child uncertain of his or her own worth and competence (negative self), which is typically characteristic of anxious attachment (Bartholomew & Horowitz, 1991). The finding that autonomy-support was unrelated to attachment avoidance was somewhat surprising because at least some studies found a significant relationship between low autonomy-support and avoidant attachment representations (e.g., Brenning et al., in press). A possible explanation for this inconsistency of findings is the influence of informant bias. As can be seen in Table 1, the link between autonomy-support and avoidant attachment is stronger when using adolescent reports compared to when using mother reports. This suggests that children with avoidant attachment representations would perceive their parents as being autonomy-suppressing, while parents of children with avoidant attachment representations do not necessarily report using more controlling techniques. Although additional research is needed to further investigate this issue, the present study's results indicate that parenting behaviors and attachment representations are related in relatively specific and theoretically plausible ways.

Further, our final model (see Figure 1) showed that adolescents' representations of attachment anxiety and avoidance were related significantly and independently to internalizing symptoms in children. Together, the findings provide support for the importance of both parental behaviors and attachment representations in the mother-adolescent similarity in internalizing symptoms. Future research would do well to investigate how this role for parenting and attachment relates to the other mechanisms proposed by Goodman and Gotlib (i.e., genetic transmission, neuroregulatory mechanisms, and contextual stressors). This is especially important because the decrease in association between maternal depressive symptoms to adolescents' internalizing symptoms due to parenting and attachment was only moderate to small.

Interestingly, we found that our model was not moderated by clinical status, suggesting that the structural associations in the model were largely similar for referred and non-referred adolescents. Although previous studies (e.g., Connell and Goodman, 2002) pointed to the importance of examining whether children's clinical status qualify the effects of predictors of child internalizing problems, our findings were rather consistent across groups, thus testifying to the stability of the proposed model. More generally, our findings are in line with the Spectrum Hypothesis, which states that a disorder (for example, depression) is not a discrete taxon but rather represents the extreme endpoint of a continuously-distributed dimension (Shiner & Caspi, 2003). According to this spectrum idea, referred and non-referred adolescents would not differ significantly in terms of the strength of associations between parental depression, parenting behavior, insecure attachment representations, and internalizing symptoms. It should be acknowledged, however, that moderation testing often involves low power relative to main effects testing



(Aiken & West, 1991). As such, future research with an explicit focus on clinical status should further investigate this hypothesis.

In terms of clinical implications, our findings suggest that both parenting behaviors and attachment representations may be a good target for therapeutic intervention. Regarding parenting, numerous parenting programs have been identified, some of which are described in NAPP's Commissioning Toolkit (2011). Many of these programs target the role of involvement, warmth, and responsiveness yet do not explicitly address the role of autonomy-support. With regard to attachment, attachment-based family therapy (e.g., Diamond, Diamond, & Hogue, 2007) may be a fruitful approach to prevent and treat internalizing problems in adolescence. Given the present study's results, it seems important to evaluate whether an intervention targeting both parenting and attachment would be more effective than an intervention targeting only one of these factors. Ideally, such an intervention also would focus on the role of parental autonomy-support, an important feature of parenting quality that tends to be neglected in extant interventions.

#### *Limitations and Directions for Future Research*

Although the current research yielded some unique findings, some limitations must be mentioned. First, an important question for further research is whether fathers might also contribute to the intergenerational similarity of internalizing symptoms. According to Connell and Goodman (2002), it is no longer justifiable to exclude fathers from research programs on the basis of the belief that their mental health problems are less closely related to children's problems than are mothers'. Although children's internalizing problems were more closely related to the presence of psychopathology in mothers than in fathers in the meta-analysis of Connell and Goodman (2002), the magnitude of the differences was small. Another direction could be to examine the role of step-parents. For example, it could be the case that having

a secure attachment relationship with a step-parent may, at least partly, buffer the impact of an insecure attachment relationship with one's biological parent (Hayashi & Strickland, 1998).

Second, this study was based on adolescents' and mothers' self-reports but did not include data from other important sources, including interviews, observational measures and teacher reports. It remains unclear whether the information provided by children and mothers on self-report questionnaires adequately reflects their actual thoughts, feelings and behaviors. Self-report measures mainly tap into conscious thoughts and ideas, which may increase the likelihood of self-presentational bias (Garber & Kaminski, 2000). Other methods (e.g. narratives) may capture unconscious feelings that self-report scales fail to measure. On the other hand, the use of self-report instruments has an important advantage. Self-report is the most direct way of tapping into subjective experiences, which is vitally important with research on internalizing problems (Garber & Kaminski, 2000).

Third, the study is based on cross-sectional data, which hindered out the ability to assess the direction of effects in the hypothesized model. For example, as depressive symptoms may affect individuals' perceptions, especially those of interpersonal relationships (e.g., Stein et al., 2010), it is possible that depressed adolescents are temporarily perceiving relationships as more negative than they are. This bias may explain some of the observed associations. Further, it makes conceptual sense that internalizing symptoms in adolescents contribute to more controlling parenting and/or less attachment security. In addition, having a child with internalizing problems might increase depressive symptoms in parents. Longitudinal or experimental research is needed to more adequately test the direction of effects. Moreover, it is possible that another third variable may account for some of the associations observed in the current study's integrated model (Figure 1). For example, life

stressors (such as partner violence in the home) and some of the other mechanisms identified by Goodman and Gotlib (1999) could affect the variables in our model and explain at least partly the associations observed in the current research.

Finally, future research may pay more explicit attention to important background variables such as gender, age, and family structure. We examined associations between each of these variables and the study variables and controlled for these variables when associations were significant. Future research might take this issue one step further by examining more systematically (e.g., by using larger and more heterogeneous samples) whether associations between maternal depression, parenting, attachment and children's psychopathology are consistent across gender, age, and family structure.

### *Conclusion*

The current study found support for the role of maternal parenting behaviors and mother-adolescent attachment representations as intervening variables in the intergenerational similarity of internalizing symptoms. Maternal internalizing symptoms, which might result from insecure attachment experiences in mothers' own developmental history, were related to maladaptive parenting strategies. Further, inadequate maternal parenting was associated with adolescents' insecure attachment representations, which showed a relationship with adolescent internalizing symptoms. Given the results obtained in this study, a further exploration of the role of parenting and attachment dynamics in the intergenerational transmission of internalizing problems should be a high priority on the research agenda of developmental and clinical psychologists. Ideally, such future work would rely on longitudinal and genetically informed designs.

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Table 1

*Correlations among Study Variables*

	1	2	3	4	5	6	7	8	9
1. Maternal depressive symptoms (BDI)	-								
2 Adolescent internalizing symptoms (CDI)	.16*	-							
3 Adolescent internalizing symptoms (YSR)	.24***	.68***	-						
4 Adolescent internalizing symptoms (CBCL)	.43***	.43***	.58***	-					
5 Responsiveness (Adolescent report)	-.12 <sup>†</sup>	-.39***	-.28***	-.14*	-				
6 Responsiveness (Mother report)	-.24***	-.17**	-.15*	-.17**	.40***	-			
7 Autonomy-support (Adolescent report)	-.15*	-.43***	-.35***	-.13*	.62***	.28***	-		
8 Autonomy-support (Mother report)	-.34***	.00	-.02	-.15*	.14*	.44***	.36***	-	
9 Adolescents' attachment avoidance	.17**	.42***	.35***	.18**	-.80***	-.40***	-.55***	-.15*	-
10 Adolescents' attachment anxiety	.02	.40***	.41***	.17**	-.44***	-.24***	-.59***	-.16*	.44***

Note. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , <sup>†</sup> $p < .10$ .

Table 2

*Means by Gender, Family Status, and Clinical Status*

	Male	Female		Intact Family	Non-intact Family	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>F-value</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F-value</i>
Depression Mother (BDI)	11.54 (8.58)	9.98 (10.39)	1.81	8.26 (7.65)	14.78 (9.97)	3.74**
Internalizing symptoms Adolescent (CDI)	13.23 (5.73)	14.55 (7.45)	7.54**	12.44 (6.22)	15.40 (6.13)	4.04**
Internalizing symptoms Adolescent (YSR)	.48 (0.34)	.63 (0.37)	10.76**	.47 (0.33)	.61 (0.37)	2.33*
Internalizing symptoms Adolescent (CBCL)	.43 (0.28)	.49 (0.33)	5.76*	.39 (0.31)	.53 (0.27)	2.90*
Responsiveness (Adolescent report)	3.87 (0.89)	3.82 (0.98)	5.22*	3.89 (0.88)	3.74 (0.96)	2.22*
Responsiveness (Mother report)	4.28 (0.45)	4.29 (0.63)	1.55	4.34 (0.49)	4.22 (0.53)	1.67
Autonomy-support (Adolescent report)	3.67 (0.66)	3.69 (0.73)	1.58	3.77 (0.66)	3.54 (0.70)	2.24*
Autonomy-support (Mother report)	3.82 (0.40)	3.87 (0.57)	1.10	3.93 (0.45)	3.73 (0.44)	2.97**
Avoidance (Adolescent report)	3.31 (1.16)	3.33 (1.46)	4.37*	3.20 (1.14)	3.54 (1.39)	2.67*
Anxiety (Adolescent report)	2.47 (1.04)	2.49 (1.07)	1.30	2.33 (1.01)	2.69 (1.01)	1.58

Note. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , †  $p < .10$ .

(continued)

Table 2

*Means by Gender, Family Status, and Clinical Status (continued)*

	Referred	Non-referred	F-value
	<i>M (SD)</i>	<i>M (SD)</i>	
Depression Mother (BDI)	13.11(10.33)	9.56 (7.97)	3.42 <sup>†</sup>
Internalizing symptoms Adolescent (CDI)	15.12(7.25)	12.60 (5.34)	16.95***
Internalizing symptoms Adolescent (YSR)	.63 (0.37)	.45 (0.33)	14.88***
Internalizing symptoms Adolescent (CBCL)	.64 (0.28)	.31 (0.23)	77.27***
Responsiveness (Adolescent report)	3.73 (1.04)	3.95 (0.81)	12.41**
Responsiveness (Mother report)	4.21 (0.50)	4.34 (0.51)	8.41**
Autonomy-support (Adolescent report)	3.55 (0.77)	3.77 (0.59)	9.39**
Autonomy-support (Mother report)	3.73 (0.46)	3.91 (0.44)	4.53*
Avoidance (Adolescent report)	3.42 (1.37)	3.24 (1.17)	9.26**
Anxiety (Adolescent report)	2.61 (1.10)	2.38 (1.00)	4.50*

Note. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , <sup>†</sup> $p < .10$ .

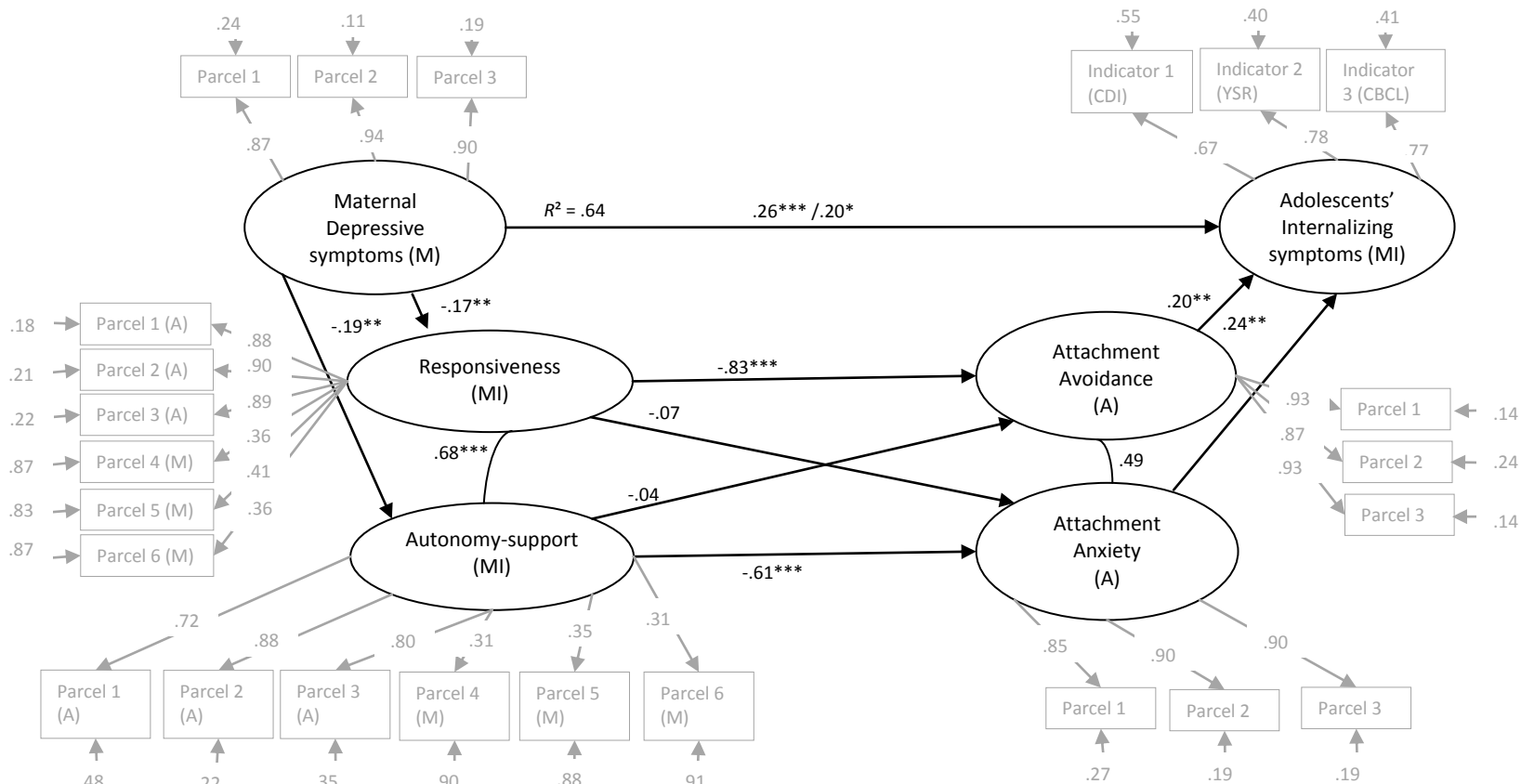


Figure 1. The role of parenting and attachment in the intergenerational similarity of depressive symptoms. Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . Note:  $R^2$  = Explained variance; M = Mother report; A = Adolescent report; MI = Multi-informant report. All associations are controlled for age, gender, family status, and clinical status. For sake of parsimony, the effects of these background variables are not shown.



# Chapter 5

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## **Longitudinal dynamics of depressogenic personality and attachment dimensions in adolescence: An examination of associations with changes in depressive symptoms<sup>1</sup>**

This study examined longitudinal associations between adolescents' depressogenic personality orientations (i.e., sociotropy and autonomy), dimensions of mother-adolescent attachment (i.e., anxiety and avoidance), and depressive symptoms. The sample consisted of 289 high school students (mean age = 12.51 years at Time 1, 66% female) participating in a 3-wave cohort-sequential design. Latent growth curve modeling (LGC) revealed no significant intra-individual change in depressogenic personality orientations but significant changes in dimensions of attachment and symptoms of depression. Initial levels of sociotropy were not significantly related to changes in attachment dimensions and depressive symptoms. High initial levels of autonomy were associated with increases in attachment anxiety, attachment avoidance, and depressive symptoms. In addition, results suggested that the association between initial levels of autonomy and increases in depressive symptoms was mediated by increases in attachment anxiety and avoidance. Discussion focuses on the status of depressogenic personality and attachment as risk factors for depression.

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<sup>1</sup> Brenning, K., Soenens, B., Braet, C., & Beyers, W. (second revision). Longitudinal dynamics of depressogenic personality and attachment dimensions in adolescence: An examination of associations with changes in depressive symptoms. [*Development and Psychopathology*]

## Introduction

A number of theories of depression have identified qualitatively different dimensions of personal and interpersonal vulnerability to depression (Blatt & Maroudas, 1992). Beck (1983), for instance, revised his depression theory to include the role of two major personality dimensions, termed sociotropy and autonomy, that would relate to the development of depressive symptoms. According to attachment theory (Bowlby, 1980), dimensions of insecure attachment (i.e., anxiety and avoidance) would contribute to the development of depression. Both depressogenic personality and dimensions of attachment have been examined intensively in relation to depression in both adolescents and adults (e.g., Beck, Taylor, & Robbins, 2003; Muris, Meesters, van Melick, & Zwambag, 2001). Moreover, given the striking conceptual similarity between Beck's concepts of sociotropy and autonomy and the attachment dimensions of anxiety and avoidance, respectively (Blatt & Maroudas, 1992), a number of studies have examined associations among both vulnerability domains (e.g., Sibley, 2007). The current study aimed to contribute to this research by examining associations between both domains of vulnerability and depressive symptoms from a longitudinal perspective. Specifically, relying on Latent Growth Curve modeling (LGC), we aimed to examine intra-individual change in depressogenic personality, mother-adolescent attachment, and depressive symptoms as well as associations between change in each of these constructs. In doing so, we aimed to gain more insight in the relative stability (versus change) of each of these constructs and in the temporal ordering of their associations during adolescence.

### *Beck's Theory on Depressogenic Personality Orientations*

Beck (1983) proposed two dimensions of personality, sociotropy and autonomy, as specific factors in the onset and course of depression. The

sociotropic individual is a socially dependent person with excessively high needs for intimacy and affiliation. He or she is particularly sensitive to and afraid of rejection by others because he or she is dependent on others for safety and gratification. In contrast, autonomy is characteristic of individuals who tend to be assertive and excessively focused on the achievement of personal goals, to such an extent that they are highly sensitive to being subjected to demands or restrictions. The autonomous individual derives gratification from directing his or her own activities and attaining self-imposed goals. According to Beck (1983), sociotropy and autonomy represent cognitive vulnerabilities that possibly interact with life events to predict depression or that even generate such life events. Cognitive distortions of the sociotropic type of depression would center around the irreversibility of loss and a sense of social undesirability. Cognitive distortions in individuals high on autonomy would center around themes of defeat, failure, and personal incompetence.

Concepts similar to sociotropy and autonomy have been coined from other theoretical positions, including object-relational theory (Blatt & Maroudas, 1992). Blatt (1974), for example, identified two primary personality configurations as vulnerabilities to psychopathology, that is, dependency and self-criticism. Similar to sociotropy, dependency is characterized by exaggerated and distorted attempts to establish and maintain gratifying interpersonal relations. Similar to autonomy, self-criticism is characterized by a relentless involvement in personal goal attainment. Efforts are concentrated on achievement in order to gain approval and to compensate for feelings of failure and inadequacy.

A large body of, mostly cross-sectional, research supports Beck's and Blatt's theories of personality vulnerability to depressive symptoms in both adolescents and adults (e.g., Beck, Robbins, Taylor, & Baker, 2001; Little & Garber, 2000; Murphy & bates, 1997; Rudolph & Klein, 2009; Zuroff, Mongrain,

& Santor, 2004). For instance, Beck et al. (2003) found significant cross-sectional associations of both sociotropy and autonomy with depressive symptoms in freshman college students beginning their first semester. The association between sociotropy and depressive symptoms was specifically mediated by symptoms of homesickness (which represent a preoccupation with the family and interpersonal relationships), whereas the relationship between autonomy and depressive symptoms was specifically mediated by a lack of satisfaction with one's grades obtained (which represents a focus on achievement of goals). In addition to these cross-sectional studies, some longitudinal studies found evidence that both sociotropy and autonomy significantly predict increases in depressive symptoms, with sociotropy emerging as the strongest predictor (e.g., Masih, Spence, & Oei, 2007; Mazure, Bruce, Maciejewski, & Jacobs, 2000). However, longitudinal studies are scarce and relied on relatively small and specific samples (e.g., clinically depressed adults and pregnant women). Instead, the present study relied on a large sample of adolescents from the general population to examine longitudinal associations between dimensions of personality vulnerability and depressive symptoms. Given that sociotropy and autonomy are considered vulnerability factors for depression (rather than mere concomitants or consequences), we expected that sociotropy and autonomy would predict increases in early adolescents' depressive symptoms.

Our longitudinal design also provided us with the opportunity to examine the relative stability (versus change) of sociotropy and autonomy. Theoretically, sociotropy and autonomy are typically viewed as relatively malleable features of personality (i.e., surface personality traits) rather than as fully stable dispositions (i.e., core personality traits). Beck (1983), for instance, proposed that sociotropy and autonomy should be viewed as personality modes that can underlie an individual's psychological functioning, but are open

to some modification. In line with this, Zuroff et al. (2004) described dependency/sociotropy and self-criticism/autonomy as cognitive-affective structures that are susceptible to change and are prone to interpersonal experiences.

Empirically, however, longitudinal studies in adults showed relatively large stability coefficients (e.g., Zuroff, Blatt, Sanislow, Bondi, & Pilkonis, 1999; Zuroff et al., 2004). The stability coefficients obtained for depressogenic personality were even similar in effect size to stability coefficients found in adolescent research on personality traits from the five-factor model (which are considered to be features of core personality; Roberts & DelVecchio, 2000).

Given the discrepancy between conceptual views on the stability of depressogenic personality and results from the few longitudinal studies, we aimed to further examine the stability of sociotropy and autonomy in early adolescence. It was deemed important to examine the stability of depressogenic personality in this age period because adolescence is considered a life-period characterized by room for change and development in personality (McCrae et al., 2002). More specifically, using Latent Growth Curve (LGC) modeling, the present study will examine stability (versus change) in terms of intra-individual change. The few previous longitudinal studies on depressogenic personality have focused rather exclusively on mean-level and rank-order change in personality (e.g., Zuroff et al., 1999). Mean-level stability (versus change) represents how a group's mean-level remains stable or changes over time, whereas rank-order stability (versus change) deals with the question whether the ordinal position of individuals within a group remain the same (or change) relative to other individuals over time. As such, mean-level change does not take into account individual differences, whereas rank-order change does not take into account mean-level differences across time. In

contrast, intra-individual stability (versus change) deals with the question whether individuals remain stable (or change) in terms of mean levels over time (Caspi, 1998). As such, the high mean-level or rank-order stability in sociotropy and autonomy observed in previous research may have masked substantial intra-individual change.

### *Dimensions of Attachment Insecurity*

According to attachment theory, each individual develops an attachment style on the basis of interpersonal experiences with caregivers (Bowlby, 1980, 1988). Recent research supports a distinction between two continuous dimensions as the best way to represent insecure attachment (Brennan, Clark, & Shaver, 1998): (a) attachment anxiety, which involves preoccupation with social support, jealousy, fear and vigilance concerning abandonment and rejection, and (b) attachment avoidance, which involves avoidance of intimacy, discomfort with closeness, and excessive self-reliance. Bowlby (1980) postulated that the loss of secure attachment during infancy, childhood, or adolescence contributes to the development of depression. This loss can be due to the death of a primary attachment figure or to repeated failure to form a secure relationship with a caregiver. This leads to the formation of pessimistic, hopeless representations of self and the broader interpersonal world that would, in turn, increase the vulnerability for depression. Several recent models (e.g., Brumariu & Kerns, 2010; DeKlyen & Greenberg, 2008; Morley & Moran, 2011) identified potential mediators and moderators of the relationship between early insecure attachment and internalizing problems. Depressogenic inferential style, maladaptive emotion regulation and low self-worth are only some of the processes that may account for the relationship between attachment insecurity and depressive symptoms (for an overview, see Brumariu & Kerns, 2010).

The notion that insecure attachment represents a risk factor for depression has received support from different strands of research. Longitudinal studies that investigated early attachment experiences found evidence that insecure attachment experiences early in life place individuals at risk for depressive symptoms during adolescence and adulthood (e.g., Bifulco, Harris, & Brown, 1992; Bifulco et al., 2006; Morley & Moran, 2011; Shaw & Dallos, 2005). Other studies have examined associations between insecure attachment and depressive symptoms within adolescence and adulthood. Research with both adults (Mikulincer & Shaver, 2007) and adolescents (e.g., Brumariu & Kerns, 2010; Muris, et al., 2001) supports a relationship between insecure attachment (attachment anxiety and attachment avoidance) and depressive symptoms. With few exceptions, most studies on attachment and depressive symptoms within adolescence have been cross-sectional in nature. In one of the few longitudinal studies within adolescence, Buist, Deković, Meeus and van Aken (2004) found reciprocal negative effects between adolescents' felt security in the relationship with their parents and internalizing problem behavior. Longitudinal studies that investigated both anxious and avoidant attachment in adolescents found that both insecure attachment dimensions were predictive of rank-order changes in adolescents' depressive symptoms (e.g., Conradi & de Jonge, 2009; Doyle & Markiewicz, 2003; Lee & Hankin, 2009). The present study builds on these scant longitudinal findings by investigating whether adolescents' attachment anxiety and avoidance and intra-individual changes in these attachment dimensions are predictive of intra-individual changes in adolescent depressive symptoms.

As regards the stability of attachment representations, previous research mainly focused on the long-term stability of attachment from the first years of life to later developmental periods, including middle childhood or adolescence. Fraley (2002), for example, has undertaken a systematic

examination of the longitudinal literature on attachment stability within the parent-child relationship starting from the first year of life until adolescence. Although there is some room for change, this meta-analysis mainly showed evidence for a high degree of rank-order stability. In contrast to studies that investigate attachment stability across different developmental periods (i.e., from first year of life to adolescence; Fraley, 2002), not a lot is known about stability and change in attachment representations within adolescence. Much like research on the stability of depressogenic personality, research on change and stability in attachment during adolescence has generally addressed one of two types of change, that is, mean-level change and rank-order change. Buist, Deković, Meeus, and van Aken, (2002), for instance, found mean-level decreases in security of parent-child attachment during adolescence. This mean-level decline in attachment security is consistent with the broader literature on changes in parent-adolescent relationships, which shows a small, yet significant, age-related deterioration of the quality of parent-adolescent relationships (e.g., Barber, Maughan, & Olsen, 2005; Steinberg, 2002). Other studies that examined rank-order stability in adolescent attachment security typically found evidence for substantial rank-order stability, with stability coefficients typically ranging between .48 and .64 (e.g., Zimmerman & Becker-Stoll, 2002). It appears then that, although there is an average trend towards a decrease in attachment security in adolescence, relative differences between adolescents in attachment security remain relatively stable.

One important issue that has not been examined systematically is whether there are interindividual differences in intra-individual change in parent-adolescent attachment. That is, do all adolescents show a similar decline in attachment security or is there meaningful variation around this mean-level trend? In this study, we will address attachment in the context of the mother-adolescent relationship. An examination of variation in intra-



individual change may yield new and important information about the level of change and stability in mother-adolescent attachment. To the extent that there is substantial and significant variability in intra-individual change in attachment, a view on parent-adolescent attachment representations as susceptible to change would obtain relatively more support than a view on parent-adolescent attachment representations as crystallized orientations with no or little room for change. Further, it should be noted that research on stability of attachment has yielded somewhat different results depending on the method of assessment. Studies with self-report measures of attachment tend to point to more change in attachment than studies with interview assessments (Davila, Burge, & Hammen, 1997; Davila & Cobb, 2003). Given the current study's research goals, we used self-reports because these might be relatively more sensitive to capture (variability in) intra-individual change in attachment.

#### *Depressogenic Personality, Attachment, and Depressive Symptoms*

At the conceptual level, the distinction between anxious and avoidant attachment shows a striking convergence with the distinction between sociotropy and autonomy, respectively (Blatt & Maroudas, 1992; Luyten, Blatt, & Corveleyn, 2005). Anxious attachment is characterized by a high demand for attention, coupled with anxiety about loss of gratification (Bowlby, 1980). This pattern of anxiety and strong interpersonal concerns about important others parallels Beck's description of a sociotropic attitude. In contrast, avoidant attachment develops in childhood in response to loss or an inadequate or unsympathetic (critical, rejecting) care of a parent. As a defense against feeling unloved, the child strives to be self-reliant and later withdraws from others. The strong focus on self-reliance inherent in avoidant attachment is reminiscent of autonomy as described by Beck (Blatt & Maroudas, 1992). However, at the same time, autonomous individuals might also score high in

attachment anxiety as they tend to have a latent concern with being disapproved (and potentially even abandoned) by significant others (see Blatt, 1995; Cantazaro & Wei, 2010; Wei, Mallinckrodt, Russel, & Abraham, 2004; Zuroff & Fitzpatrick, 1995). As such, at least some autonomous individuals would aim to achieve goals to be accepted by others and to avoid being appreciated less in case of failure (Besser and Priel, 2005; Brenning, Soenens, Braet, & Bosmans, 2011a). Therefore, whereas sociotropy is expected to be uniquely associated to attachment anxiety, we expect autonomy to be associated to both attachment avoidance and anxiety.

Although there is substantial theoretical convergence between both perspectives, the attachment dimensions are conceptually unique from sociotropy and autonomy (Blatt & Maroudas, 1992; Brenning et al., 2011 a; Sibley, 2007). For instance, whereas Beck's (1983) concepts of sociotropy and autonomy are considered mainly cognitive orientations, the concepts of anxiety and avoidance are relatively more relational in nature and primarily reflect individuals' interpersonal orientation. Further, the concepts of anxiety and avoidance are distinct from sociotropy and autonomy because of attachment theory's unique focus on emotion regulation. Theory and research show that processes of emotion regulation are strongly intertwined with attachment processes and may explain how and why attachment is related to adjustment and developmental outcomes (Allen & Miga, 2010; Davila, Ramsay, Stroud, & Steinberg, 2005; Shaver & Mikulincer, 2002). Specifically, attachment anxiety has been argued and shown to relate to a hyperactivating style of regulating emotions while attachment avoidance relates to a suppressive and deactivating mode of emotion regulation (Shaver & Mikulincer, 2002). In sum, in the prediction of depression, it seems important to examine the role of both dimensions of social-cognitive personality orientations (sociotropy/autonomy)

and the role of interpersonal and emotion-regulation orientations (i.e., the attachment dimensions).

Consistent with the conceptual similarity between the two domains of vulnerability, research with adults has shown that sociotropy (dependency) is associated relatively uniquely with attachment anxiety, whereas autonomy (self-criticism) has been found to relate to both attachment anxiety and avoidance (e.g., Dunkley & Berg, 2011; Sibley, 2007). At least one study generally replicated these findings in a sample of adolescents (Brenning et al., 2011 a).

The present study further investigates the longitudinal interplay between two of the most important domains in vulnerability to depression. Such an examination does not only allow us to examine the specificity of associations between the two domains of vulnerability at the level of intra-individual change, it may also provide a window into the direction of effects in associations between depressogenic personality and mother-adolescent attachment. In this regard, two alternative hypotheses can be derived from the literature. On the one hand, one might predict that depressogenic personality is a predictor of attachment and, as such, drives changes in mother-adolescent attachment representations. On the other hand, one might conceive of mother-adolescent attachment patterns as developmental antecedents that influence changes in depressogenic personality.

First, depressogenic personality might be seen as a predictor of attachment. Sibley (2007) considered sociotropy and autonomy as global and highly abstracted personality-level modes and, in contrast, considered attachment anxiety and avoidance as domain-specific models of close relationships nested under these global dimensions. As generalized dispositions (i.e., sociotropy and autonomy) may govern behavior in close interpersonal relationships, Sibley (2007) modeled personality-based

sociotropy and autonomy as temporal antecedents of relationship-specific attachment anxiety and avoidance. However, the cross-sectional nature of this research hindered a proper assessment of the direction of effects in the hypothesized model. Longitudinal research is needed to examine whether depressogenic personality actually predicts intra-individual change in attachment. Davila et al. (1997) indeed argued that personality may explain at least partly why some people may be more prone to changing attachment styles than others. One mechanism that may explain how and why personality features might bring about changes in attachment style is the process of stress generation (Hammen, 1991). Consistent with the principle of stress generation, individuals high on sociotropy or autonomy have been found to actively contribute to the occurrence of negative life events and more specifically, to negative interpersonal experiences. For example, autonomous individuals often strive for extremely high personal standards at the expense of gratifying interpersonal relationships. Individuals high on autonomy/self-criticism tend to engage in aloof or even hostile interpersonal styles (e.g., Habke & Flynn, 2002; Mongrain, 1998). It seems likely that people in the environment of highly autonomous individuals will respond to such an interpersonal style with negative interpersonal behavior such as hostility and intrusiveness. When such negative interpersonal events accumulate, this may result in a further increase and strengthening of autonomous' individuals insecure attachment representations. In sum, personality vulnerability and associated stress factors might make them more directly vulnerable to insecure attachment and subsequent depression than individuals low on depressogenic personality (Priel & Shahar, 2000).

Second, one might conceive of attachment patterns as developmental antecedents that influence changes in depressogenic personality (e.g., Blatt & Homann, 1992). This reverse order of effects seems particularly plausible when

studying representations of parent-child attachment relationships, which are the focus in the current study. For example, Cantazaro and Wei (2010) reasoned that personality features follow from relatively stable attachment patterns. Because of others' inconsistent care, individuals with higher levels of attachment anxiety would develop ways of coping with fear of loss. Across time, these ways of coping may become expressed in one's personality functioning and, in particular, in terms of an excessive preoccupation with interpersonal relationships to prevent others from showing unavailability (i.e., sociotropy). Similarly, a harsh and self-critical personality orientation might be considered as an adaptation to a developmental history of unsupportive and rejecting parenting and subsequent avoidant attachment (Blatt & Homann, 1992). A study by Besser and Priel (2005) supported this hypothesis, in that, depressogenic personality (i.e., self-criticism) was a mediator in the association between attachment insecurity and depression. However, because the Besser and Priel (2005) study was cross-sectional in nature, statements about the direction of effects could not be made.

To date, the only direct comparison of these two alternative perspectives was done in a cross-sectional study with undergraduate students (Cantazaro & Wei, 2010). Results were inconclusive, as they showed support for both a model in which attachment dimensions mediate the direct relationships between personality dimensions and depressive symptoms, and a model in which personality dimensions mediated the direct relationships between attachment and depressive symptoms. As LGC modeling allows for a more dynamic approach of this research question, the current study aimed to contribute to the question of temporal ordering in associations between depressogenic personality and mother-adolescent attachment. In addition, this study aimed to examine whether associations between initial levels of one of the two vulnerability factors (i.e., depressogenic personality and attachment)

and changes in depressive symptoms, if any, would be mediated by changes in the other vulnerability factor.

### *The Present Study*

This research attempts to test an integrated model of associations between personality vulnerability, attachment representations, and depressive symptoms. More specifically, the main aims of the present study were (a) to examine the stability of depressogenic personality dimensions and dimensions of mother-adolescent attachment from an intra-individual perspective, (b) to examine longitudinal associations between depressogenic personality and dimensions of mother-adolescent attachment, and (c) to examine longitudinal associations between both domains of vulnerability and adolescent depressive symptoms as well as the possibility that one of the domains may mediate the effects of the other domain.

We focused on adolescents' representations of attachment to their mother for a couple of reasons. It has been argued that there is more room for change in representations of one specific attachment relationship (i.e., mother-child) than in general (i.e., relationship-overarching) attachment representations (Buist et al., 2002). We focused specifically on mother-child attachment as the mother-child relationship is still one of the most influential and visible relationships during adolescence (Allen, 2008).

The age period of adolescence is highly relevant for our study aims as all the systems involved in the hypothesized model (i.e., depressogenic personality, attachment, and psychological problems) are assumed to undergo dynamic and important changes during the transition from middle childhood to adolescence. Adolescence is described as an important formative phase for the development of personality vulnerability to depression (Blatt & Homann, 1992; Flett, Hewitt, Oliver, & MacDonald, 2002). Also during adolescence, there is a changing balance between closeness in mother-child relationships and

exploratory behavior (Allen, 2008). Although the quality of attachment to parents would generally decrease during adolescence (Buist et al., 2002), parents continue to figure as a secure base in times of stress and remain important attachment figures who have an important impact on major developmental tasks such as identity formation (Arseth, Kroger, Martinussen, & Marcia, 2009). With regard to depressive symptoms, research has shown that the transition from middle childhood and pre-adolescence to early adolescence is marked by a steep increase in the prevalence of internalizing symptoms (Petersen et al., 1993).

## **Method**

### *Participants and Procedure*

From two secondary schools in Flanders (Belgium), 439 adolescents were contacted for this study and 319 adolescents (73%) agreed to take part. A letter was sent to the parents with information about the purpose and method of the study. Passive informed consent was obtained from the parents and active informed consent was obtained from the adolescents. Students had 45 minutes to complete a battery of self-report questionnaires during a class period. Participation was voluntary. A cohort sequential design (see Table 1) was used, with participants of three different ages (Cohort 1 to 3) receiving the same battery of questionnaires three times (Wave 1 to 3), each time with a one-year interval. The cohort sequential design is developed to assess change over time using data from several cohorts that overlap in age (Nesselroade & Baltes, 1979). This allows efficient data-gathering, as it yields enough data at each age of measurement (Baer & Schmitz, 2000). For Age 12, we had 151 participants from Cohort 1 that completed the questionnaires. For Age 13, we had 234 participants from Cohorts 1 and 2, for Age 14 we had 218 adolescents from all three cohorts, and for Age 15 we had 98 participants from Cohorts 2

and 3. For Age 16, we only had a group of 17 adolescents from Cohort 3, which was too small to be used in the analysis. So, overall, this study presents longitudinal data spanning the ages between 12 and 15 years.

All adolescents that completed the questionnaires at Wave 1 and at one other wave at least, were included in the study. To maximize sample size from ages 12 to 15 years, cases with missing values were included in the analyses using full-information maximum likelihood estimation (FIML; Little & Rubin, 1987). FIML is an iterative and theory-based approach to the treatment of missing data and has recently been shown to be more efficient and less biased than listwise (or pairwise) deletion (Enders & Bandalos, 2001), particularly for longitudinal data (Wothke, 2000). Using the FIML approach, we linked the adjacent segments of data from the different cohorts to determine a common developmental trend. In this way, we approximate a long-term longitudinal study. Because each cohort represents a different pattern of missingness in the context of the overall developmental curve, it is possible to build the complete curve using information from all cohorts simultaneously. The same developmental model is assumed in each cohort, allowing for tests of a common growth trajectory across the 4 years represented by the design (Duncan, Duncan, & Strycker, 2006).

As FIML can only be used when there are no systematic differences on the key variables between those who stayed in and dropped out of the study, it is important to compare the study variables for individuals who were present at all waves with those of individuals who were absent at one or more waves. For the current study, Little's missing completely at random (MCAR) test produced a normed  $\chi^2$  ( $\chi^2/df$ ) of 1.20. According to Bollen (1989), this indicates that the data were likely MCAR, and that it is safe to include cases with missing values in the analyses. Using the FIML approach,  $N = 289$  for all age-based analyses (98 boys and 191 girls; aged 12, 13, or 14 years at Time 1,  $M = 12.51$



years,  $SD = 0.65$ ). The majority of participants (78.9%) were from intact families whereas the remaining participants were from divorced families or from families where one of the parents had deceased. When participants came from non-intact families, they were still asked to fill out the attachment questionnaire with regard to their mother. When, exceptionally, the adolescents did not see their mother anymore or the mother has passed away, the questionnaire was not administered.

### *Measures*

*Depressogenic personality.* An adolescent version (Brenning et al., 2011 a) of the Revised Personal Style Inventory (PSI-II; Robins et al., 1994) was used to assess the constructs of sociotropy and autonomy. This slightly modified version of the PSI-II was developed to make the questionnaire more suitable and relevant for adolescents. To this aim, item wording was simplified, double negatives were removed, and the content was slightly altered (Brenning et al., 2011 a). The sociotropy and autonomy scales each consist of 24 items which are rated on a scale from 1 (*'totally disagree'*) to 6 (*'totally agree'*). An example item for sociotropy reads: "I'm very sensitive to criticism of others". An example item for autonomy reads: "I don't like it when other people make a demand on me". As in research with the original PSI-II (Robins et al., 1994), the adolescent version of the PSI-II showed good validity and strong psychometric qualities (see Brenning et al., 2011 a). In the current study, alpha coefficients across the four ages ranged between .79 and .89 and between .78 and .88 for sociotropy and autonomy, respectively.

*Attachment representations.* The Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller & Brennan, 2000) was used to measure attachment anxiety and avoidance. Participants completed an adapted version of the questionnaire adjusted for middle childhood and early adolescence, that is, the Experiences in Close Relationships Scale-Revised Child version (ECR-RC;

Brenning, Soenens, Braet, & Bosmans, 2011 b). A committee of researchers familiar with research on middle childhood and early adolescence slightly simplified the items so as to better reflect the developmental and reading level of early adolescent participants. Adolescents were asked to rate the 18 anxiety and 18 avoidance statements about their mother. The anxiety scale taps into feelings of fear of abandonment and strong desires for interpersonal merger (e.g., “I worry that my mother doesn’t really love me”). The avoidance scale taps into discomfort with closeness, dependence, and avoidance of self-disclosure (e.g., “I prefer not to tell my mother how I feel deep down”). Items are rated on a 7-point scale ranging from 1 (*‘not at all’*) to 7 (*‘very much’*). Both subscales have strong internal consistency and construct and predictive validity (Brenning et al., 2011 b). In this study, Cronbach’s alpha of the ECR-RC ranged between .87 and .94 for anxiety and between .92 and .94 for avoidance.

*Depressive symptoms.* The Children’s Depression Inventory (CDI; Kovacs, 1985; Dutch translation by Timbremont, Braet & Roelofs, 2008) is an adaptation of the Beck Depression Inventory for use with children 7-17 years of age. The scale has 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. For each item, respondents choose one of three responses that best describes them (e.g., “I feel like crying every day”). Acceptable levels of internal consistency, test-retest reliability, and validity have been established (Kovacs, 1985). Cronbach’s alpha in the current study ranged between .81 and .89. The questionnaire can be interpreted by means of cutoff scores, based on the raw total score, to identify a depressed symptomatology group. According to Kovacs (1992), a cutoff score of 19 minimizes false positives and can be used in a nonclinical sample. In the present study, the depressed symptomatology group includes between 9.83 and 17.5% of the participants across the four ages (with an average of 13.12%).

## Results

### *Descriptive Statistics and Preliminary Analyses*

Table 2 shows means, standard deviations, and intercorrelations among scores for the study variables at each of the four ages. Inspection of the correlations shows that autonomy was related positively to both anxiety and avoidance at all ages. Sociotropy was related positively to anxious attachment in most cases, whereas the association between sociotropy and avoidance was consistently non-significant. Further, both depressogenic personality orientations and both attachment dimensions were associated positively with adolescents' depressive symptoms, although associations with sociotropy appeared to be less pronounced. As indicated by the correlations within variables across ages, the majority of rank-order stability coefficients can be considered large ( $> 0.50$ ) or medium (between 0.30 and 0.50) (Cohen, 1977).

Next, differences in the study variables in terms of children's gender and family structure were examined by means of a series of analyses of variance. Gender had a significant effect on adolescents' anxiety at age 12 [ $F(1, 140) = 4.55, p < .05$ ] and on adolescents' sociotropy at age 13 [ $F(1, 201) = 9.32, p < .01$ ] and age 14 [ $F(1, 199) = 5.40, p < .05$ ], with girls reporting higher scores on anxiety and sociotropy than boys. Family status had an effect on depressive symptoms at age 12 [ $F(1, 140) = 5.69, p < .05$  at age 12] and sociotropy at age 12 [ $F(1, 140) = 4.56, p < .05$  at age 12], with adolescents living in an intact family reporting lower scores on depression and sociotropy than adolescents living in non-intact families (i.e., divorced families or families where one of the parents had deceased). We controlled for the effects of the background variables (i.e., child gender and family status) in all primary analyses by allowing paths from both variables to the constructs included in the structural models.

*Primary Analyses*

In order to address our main research questions we used age-based LGC modeling (Duncan, Duncan, Strycker, Li, & Alpert, 1999). The maximum likelihood estimator in *Mplus* was used to obtain FIML estimates. As measures of fit, we used Chi-Square ( $\chi^2$ ), the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR). Combined cutoff values below 2 or 3 for  $\chi^2/df$ , above .90 for CFI, below .05 to .08 for RMSEA and below .10 for SRMR indicate reasonable fit (Kline, 2005).

*Univariate analyses of change and stability.* Before investigating longitudinal associations between depressogenic personality, attachment and depressive symptoms, we aimed to identify models that best describe changes in all study variables from 12 to 15 years of age (Research Question 1). For each variable, two latent factors were modeled, namely (a) the intercept, reflecting the level of each variable at a fixed measurement age, and (b) the slope, which describes the rate of change over time (Duncan et al., 1999). Table 3 presents fit indices and parameter estimates of the univariate linear growth models. Fit indices for all models generally indicate reasonable fit (Kline, 2005). For both attachment dimensions and depressive symptoms, the slope means were significant and positive, indicating that an average intra-individual increase occurred across age. The significant slope variances indicate that there was substantial variability between participants in this rate of change. In contrast, no significant slope means nor variances were found for the depressogenic personality dimensions.

As both sociotropy and autonomy did not have a significant slope nor significant variability in rates of change, it can be concluded that sociotropy and autonomy are stable at the intra-individual level. Therefore, in the remainder of the analyses we modeled both dimensions with a strict stability

model (model without slope). The fit of the model did not deteriorate significantly by eliminating the slope factor for sociotropy ( $\Delta\chi^2(3) = 6.95, p > 0.05$ ) and autonomy ( $\Delta\chi^2(3) = 4.53, p > 0.05$ ). In conclusion, mother-adolescent attachment shows significant intra-individual changes over time whereas depressogenic personality remains rather stable.

*Depressogenic personality and attachment.* To examine the associations between depressogenic personality and intraindividual change in attachment (Research Question 2), we investigated the effect of sociotropy and autonomy levels on the slope factors of both anxiety and avoidance, while controlling for the initial attachment levels. More specifically, initial levels of sociotropy and autonomy were entered simultaneously in the prediction of change in attachment anxiety and avoidance ( $\chi^2/df = 1.72$ ; CFI = .93; RMSEA = .05; SRMR = .10). Results show that autonomy related significantly to change of both attachment anxiety ( $\beta = .42, p < .001$ ) and avoidance ( $\beta = .35, p < .001$ ), over and above the initial level of attachment. Initial levels of sociotropy were not significantly related to changes in attachment anxiety ( $\beta = -.04, p > .05$ ) nor avoidance ( $\beta = -.22, p > .05$ ). Together, these findings suggest that depressogenic personality, and autonomy in particular, is a predictor of changes in attachment insecurity.

*Depressogenic personality, attachment, and depressive symptoms.* To examine whether changes in attachment function as a mediator in the relationship between depressogenic personality and changes in depressive symptoms (Research Question 3), we tested a series of four models. First, we estimated a model in which levels of sociotropy and autonomy were modeled as predictors of change in depressive symptoms, while controlling for initial levels in depressive symptoms. More specifically, initial levels of sociotropy and autonomy were entered simultaneously in the prediction of change in depressive symptoms. Estimation of this model ( $\chi^2/df = 1.62$ ; CFI = .94; RMSEA

= .05; SRMR = .10) showed that autonomy ( $\beta = .49, p < .01$ ) but not sociotropy ( $\beta = -.20, p > .05$ ) was related to the rate of change of depressive symptoms, over and above the initial level of depression. Because only autonomy (but not sociotropy) was associated with the rate of change of depressive symptoms, subsequent analyses on the mediating role of attachment in the relationship between depressogenic personality and depressive symptoms were only conducted with autonomy as an independent variable.

To examine whether the association between levels of autonomy and changes in depressive symptoms is mediated by changes in attachment, we first tested a full mediation model, that is, a model where levels of autonomy were only indirectly related to changes in depressive symptoms through changes in anxiety and avoidance, while controlling for initial levels of depressive symptoms, anxiety, and avoidance (see Figure 1). Estimation of this model ( $\chi^2/df = 2.01$ ; CFI = .92; RMSEA = .06; SRMR = .08) showed that the paths from autonomy to anxiety and avoidance were both significant. Further, the effect of changes in avoidance and anxiety on rate of change of depressive symptoms were significant.

Next, bootstrapping was used to test the level of significance for indirect effects (e.g., Mallinckrodt, Abraham, Wei, & Russell, 2006). The bootstrap method is a data resampling procedure to empirically create bootstrap samples from the original data. The confidence interval (CI) is used to determine whether the indirect effects are significant (e.g., Shrout & Bolger, 2002). A total of 1000 bootstrap samples were created and a 95% CI was used to examine the significance of our indirect effect estimates. When the 95% CI does not include zero, the indirect effect is considered significant at the .05 level. The sum of indirect effects of autonomy on depressive symptoms via attachment anxiety and avoidance, including the correlation between anxiety and avoidance, was significant ( $b = .84$  [95% CI: 0.09, 1.58],  $\beta = .26$ ).

Next, we estimated a partial mediation model, in which the level of autonomy was related to changes in depressive symptoms both indirectly (i.e., through the changes in anxiety and avoidance) and directly. Estimation of this model allowed us to investigate whether the initially significant path between autonomy and changes in depression would be reduced partially or even rendered non-significant after controlling for the mediators (Holmbeck, 1997), that is, changes in anxiety and avoidance. Estimation of the partial mediation model ( $\chi^2/df = 2.02$ ; CFI = .92; RMSEA = .06; SRMR = .08) showed that the initially significant path between autonomy and the rate of change of depressive symptoms ( $\beta = .38, p < .01$ ) was reduced to non-significance ( $\beta = -.27, p > .05$ ) when taking into account changes in the attachment dimensions as mediators. In addition, the fit of the partial mediation model was not significantly better than the fit of the full mediation model ( $\Delta\chi^2(1) = 0.46, p > 0.05$ ), indicating that the association between levels of autonomy and changes in depressive symptoms was fully mediated (Holmbeck, 1997). In sum, support was obtained for the notion that changes in attachment mediate the relationship between depressogenic vulnerability (and autonomy in particular) and changes in depressive symptoms.<sup>2</sup>

To examine whether gender plays a role as a moderator variable in the final structural model (see Figure 1), a multigroup analysis was conducted comparing a constrained model (in which the modeled pathways were set to

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<sup>2</sup> Note that the mediation analyses merely show an association between changes in attachment representations and changes in depressive symptoms. It is not possible to make definite claims about the direction of effects in this association. Related to this, one might wonder whether initial depression predicts changes in attachment anxiety and avoidance. To examine this, in the model depicted in Figure 1 we included paths from initial depression to changes in both attachment anxiety and avoidance. Both pathways were non-significant and the fit of the model (see Figure 1) did not significantly improve by adding paths from initial depression to attachment anxiety and avoidance ( $\Delta SBS-\chi^2(2) = 4.65, p > 0.05$ ). This finding suggests that initial levels of depression do not predict changes in attachment and that, accordingly, it may indeed be warranted to model depression as an outcome rather than an antecedent of attachment.

be invariant across boys and girls) with an unconstrained model (in which these parameters were freely estimated across gender). Although the fit of the unconstrained model was significantly better than the fit of the constrained model [ $\Delta\chi^2(14) = 24.82, p < 0.05$ ], none of the individual paths in the structural model was significantly moderated by gender (all  $ps > .05$ ). Overall, these findings indicate that the structural model depicted in Figure 1 was invariant across gender.

### Discussion

Scholars from different theoretical frameworks have identified different dimensions of personality (i.e., sociotropy and autonomy; Beck, 1983; Blatt & Maroudas, 1992) and interpersonal orientation (i.e., attachment anxiety and avoidance; Bowlby, 1980) as risk factors for depression. The aim of this study was to investigate longitudinal relationships between both vulnerability factors and depressive symptoms in adolescence, an age period in which each of these factors are likely to be salient and dynamic. The first specific aim of this study was to investigate the degree of stability of depressogenic personality dimensions and dimensions of attachment from an intra-individual change perspective. Consistent with previous research (e.g., Zuroff et al., 2004), the results suggest that sociotropy and autonomy are quite stable. Both depressogenic personality dimensions were found to be modeled most parsimoniously with a strict stability model, that is, a model without significant intra-individual change or even variance in such change. Theoretically, however, some change and modification in personality was expected. Sociotropy and autonomy are often conceptualized in the literature as relatively malleable personality features (e.g., Beck, 1983; Zuroff et al., 2004). As such, the current study's results are remarkable, especially given that adolescence is typically thought of as a developmental period of change with room for personality development (e.g., McCrae et al., 2002). Although the



present results could suggest that these assumptions are wrong and that depressogenic personality is highly stable, even from early adolescence on, we do not think such a firm conclusion is warranted. At least three strands of research do suggest that depressogenic personality is malleable and susceptible to change. First, research on the socialization of depressogenic personality increasingly shows that parenting style dimensions such as (lack of) support and psychological control are related to depressogenic personality (e.g., Ahmad & Soenens, 2010; Koestner, Zuroff, & Powers, 1991) and even predict changes in depressogenic personality (e.g., Soenens et al., 2008). Second, research shows that depressogenic personality interacts dynamically with life events to predict developmental outcomes (e.g., Zuroff et al., 2004). Third, a number of recent studies even show that it is possible to experimentally induce depressogenic personality features within the course of one day (Boone, Soenens, Braet, & Vansteenkiste, submitted; Shafran, Lee, Payne, & Fairburn, 2006).

Given this evidence for the malleability of depressogenic personality, caution is needed in drawing firm conclusions about the stability of depressogenic personality. Possibly, the stability of depressogenic personality is moderated by factors such as life stress or the presence of severe psychopathology. Given the current study's reliance on a non-clinical sample of largely well-adjusted adolescents, most adolescents may not have been experiencing strong stressors at the time of participation in the study. One may wonder whether the stability of depressogenic personality would be lower in a subgroup of adolescents going through a stressful period. Similarly, one may wonder whether depressogenic personality is more susceptible to change when individuals are suffering from severe psychopathology or even a clinical disorder and during treatment for such a disorder. Zuroff et al. (1999), for instance, found that the rank-order stability of depressogenic personality was

lower during treatment for depression compared to the period after the treatment. However, future research is needed to further investigate the possible effects of life stress and psychopathology on the stability of depressogenic personality.

In contrast to the findings for depressogenic personality, we found significant intra-individual change and variability of change in attachment anxiety and avoidance. Specifically, we found small mean-level increases in attachment anxiety and avoidance, indicating that adolescents increasingly experience the relationship with their mother as insecure. This finding is in line with other research showing that adolescence is recognized as a period in which parent-child relationships are transformed substantially (Beyers, Goossens, Vansant, & Moors, 2003 but also Steinberg, 2002). Apart from an increase in conflict (which might at least temporarily lead to a deterioration of parent-child relationship quality and subsequent attachment insecurity), early adolescence is an important phase in the process of separation-individuation (Blos, 1979; Steinberg, 2002). Adolescents are known to deidealize their parents and to distance themselves somewhat from their parents in order to obtain a more horizontal relationship. This transformation of parent-child relationships might at least temporarily bring feelings of loss and separation (as expressed in attachment anxiety) and/or desire for more independence (as expressed in attachment avoidance). In addition, the current study also found substantial variance in the slopes of these variables. This points to inter-individual differences in change, with some individuals showing increases in insecure attachment, and others showing no change or even decreases in insecure attachment. This finding may seem at odds with previous empirical research showing evidence for strong stability of attachment (Davila et al., 1997; Fraley, 2002). However, it is important to note that, whereas we focused on intra-individual change, most previous studies focused on mean-level or

rank-order stability. As such, our findings suggest that, although rank-order differences in attachment may be highly stable, adolescents might still differ in their rate of intra-individual change. Another reason why we found significant change in attachment representations is that we used adolescent self-reports of the specific relationship with their mother. Research has indeed shown that there is more room for change in attachment when attachment is measured using self-reports rather than interviews (Davila & Cobb, 2003) and when attachment is measured in a specific relationship rather than in a general fashion (Buist & colleagues, 2002).

The second aim of the present study was to examine associations between depressogenic personality dimensions and dimensions of attachment from a longitudinal perspective. Consistent with the model of Sibley (2007), in which personality is considered a predictor of attachment representations, the results show significant associations between initial levels of depressogenic personality and rates of change in attachment. High initial levels of autonomy predicted increases in anxious and avoidant attachment. Initial levels of sociotropy, on the other hand, were not significantly related to attachment dimensions. Overall, our findings are in line with the notion that depressogenic personality (and autonomy in particular) is a driving force behind changes in attachment representations rather than the other way around. In line with theorizing by Sibley and colleagues (Sibley, 2007; Sibley & Overall, 2008), personality seems to be stable across a range of different contexts, whereas attachment representations fall lower in the network hierarchy and describe regularities within particular relationships. It should be noted, however, that this study is among the first to examine longitudinal associations between depressogenic personality and attachment and that no definite conclusions about directions of effects can be drawn. An important question for further research, for example, is whether children's age might influence the direction

of effects between depressogenic personality and attachment. For instance, quality of parenting and subsequent attachment representations may influence children's developing personality characteristics at a young age. However, when these personality orientations become crystallized later in childhood or during adolescence, personality might begin to affect attachment and interpersonal style rather than the other way around.

Our findings partially confirm the hypothesized (Blatt & Maroudas, 1992; Luyten et al., 2005) and empirically established (e.g., Brenning et al., 2011 a; Sibley, 2007) associations between sociotropy and attachment anxiety on the one hand, and between autonomy and attachment anxiety and avoidance on the other hand. Sociotropy was found to be uniquely related to attachment anxiety in the correlational analyses. However, when controlled for initial levels of autonomy, initial levels of sociotropy were not found to be significantly related to changes in attachment anxiety. Initial levels of autonomy, on the other hand, were related to changes in both attachment anxiety and avoidance. It has indeed been argued (Blatt & Maroudas, 1992) and shown in cross-sectional research (e.g., Sibley, 2007) that autonomy is related to both attachment avoidance and anxiety. The present research confirms these findings at the longitudinal level. An autonomous individual would derive gratification from attaining his own personal goals. As such, autonomous individuals are sensitive to demands or restrictions by others and may experience close interpersonal relationships as a threat. Therefore, autonomous individuals would secure their feeling of personal gratification by avoiding emotionally intimate interactions (i.e., characteristics of avoidant attachment). At the same time, however, some autonomous individuals possibly want to achieve goals in order to be accepted by others and to avoid being appreciated less in case of failure (see also Besser & Priel, 2005). This

would explain why people who score high on autonomous personality also develop anxious attachment representations.

Finally, we examined attachment dimensions as possible mediators of the relationship between depressogenic personality and depressive symptoms (Research Question 3). Theoretically, both sociotropy and autonomy are considered as vulnerability factors for depression (Beck, 1983). Both dimensions have indeed been found to relate to depressive symptoms in numerous cross-sectional studies (e.g., Beck et al., 2003). However, two longitudinal studies with small samples primarily showed evidence for a prospective relationship between sociotropy and depressive symptoms (Masih et al., 2007; Mazure et al., 2000). Autonomy was not systematically predictive of depression in these studies. This relatively unique role of sociotropy could possibly be explained by the longitudinal studies' reliance on specific samples. For example, the study by Masih and colleagues (2007) investigated women in the last trimester of pregnancy and 8-weeks postpartum, a life-period in which interpersonal events might be more salient than autonomous and performance-related events. In contrast, the present study's results did show evidence for a unique relationship between autonomy (but not sociotropy) and depressive symptoms. This might again be explained by the nature of our sample. For high school students, issues of achievement and performance might be relatively more salient than interpersonal and sociotropy-related issues. An interesting avenue for future research is to examine whether the relative importance of sociotropy and autonomy depends on the extent to which interpersonal versus achievement-related issues predominate in particular life periods. In a reformulation of Erikson's (1968) psychosocial model of lifespan development, Blatt and Blass (1990) argued that the major developmental tasks of some age periods primarily involve issues of achievement and individuality (e.g., middle childhood and adolescence)

whereas the tasks of other age periods primarily involve issues of intimacy and connectedness (e.g., young adulthood and middle adulthood). Possibly, sociotropy is more strongly related to important developmental outcomes in life periods characterized by interpersonal developmental tasks whereas autonomy might be more salient during life periods characterized by achievement-oriented developmental tasks. Clearly, additional and systematic research conducted from a lifespan perspective is needed to address these speculations.

A second possibility is that sociotropy would relate to negative events in a relatively more reactive (rather than proactive) fashion than autonomy (Shahar, Joiner, Zuroff, & Blatt, 2004). Although both sociotropy/dependency and autonomy/self-criticism may actively contribute to the generation of stress, some empirical evidence suggests that sociotropy/dependency is mainly related to depression under conditions of negative life events (e.g., Luyten et al., 2011; Priel & Shahar, 2000), a finding which is consistent with a diathesis-stress perspective on vulnerability to depression (Clark, Beck, & Alford, 1999). In contrast, and consistent with a stress generation perspective (Hammen, 1991), individuals high on autonomy/self-criticism have been found to more actively contribute to the occurrence of negative life events in their life, which might make them more directly vulnerable to depression than individuals high on sociotropy (Priel & Shahar, 2000). Because only autonomy (but not sociotropy) was related to changes in depressive symptoms, we could only perform mediation analyses with autonomy. Consistent with the hypothesis that dimensions of attachment might explain association between personality vulnerability and changes in depressive symptoms, changes in both attachment anxiety and avoidance were found to mediate the relationship between autonomy and changes in depressive symptoms. These results are in line with a sequence of events as proposed by Cantazaro and Wei (2010). In a cross-

sectional study, they tested and confirmed a model in which attachment dimensions mediate the direct relationship between personality dimensions and depressive symptoms. These results suggest that autonomous individuals would have a strong focus on the achievement of personal goals to such an extent that help from others would trigger themes of personal incompetence. As such, autonomy is associated to attachment avoidance. On the other hand, whereas most autonomous individuals would focus on the achievement of personal goals to fulfill their own standards, others would strive for personal goals in order to obtain others' recognition. As such, cognitive distortions of individuals high on autonomy would also translate into anxious attachment representations. In turn, both anxious and avoidant attachment would relate to increases in depressive symptoms, as both insecure attachment dimensions would undermine the individuals' capacity to generate consistent processes for regulating emotions in times of stress (Cicchetti, Ackerman, & Izard, 1995).

#### *Limitations*

Although the current research yielded some unique findings, a number of limitations must be mentioned. First, adolescents' attachment was measured in the relationship with their mother only. However, during adolescence attachment relationships are not limited to mother-child relationships. Fathers also play an important role and, in addition, the interpersonal world of adolescents often witnesses a shift from parents to peers or romantic partners (Allen, 2008). As such, future research should try to replicate the present study's findings using a general attachment measurement or using measures of attachment in other specific relationships.

Second, the current study's sample is a non-clinical sample of generally Caucasian families with few adolescents with moderate or severe depression scores. Future research is needed to investigate the applicability of the mediational model in individuals with other ethnical backgrounds and with

more severe depressive symptoms. It is likely that effects obtained in this study may be even more pronounced in samples with higher levels of depressive symptoms or stronger variability in depressive symptomatology (Gotlib, Lewinsohn, & Seeley, 1995). Moreover, it would also be important to examine family structure as a moderator variable. For example, it might be the case that there is more variability in the rate of change in attachment among adolescents from non-intact families.

Third, our findings do not provide a definite test of the direction of effects in associations between depressogenic personality, changes in attachment and changes in depressive symptoms, let alone for causality. For instance, due to the self-reported nature of our data, the possibility exists that adolescents report more insecure attachment representations as they become more depressed (see research by Roisman, Fortuna, & Holland, 2006). As such, the association between changes in attachment and changes in depression may reflect informant bias. One finding from our study that somewhat contradicts this interpretation is that the fit of the final model did not improve significantly by adding paths from initial levels of depression to changes in attachment anxiety and avoidance [ $\Delta\text{SBS-}\chi^2(2) = 4.65, p > 0.05$ ]. Still, future research would do well to avoid such interpretation problems altogether by including multi-informant measures of both attachment and depressive symptoms. Also, to obtain a more valid picture of the constructs involved in our model, future research may rely on multiple, alternative measures to assess the study variables. Regarding personality vulnerability, future studies may include additional measures beyond the PSI-II such as the Depressive Experiences Questionnaire. By combining scores from several measures, a more comprehensive and valid picture of personality vulnerability might be obtained.



Finally, future research should also include a measure of stress to investigate the diathesis-stress (Clark, Beck, & Alford, 1999) versus stress generation perspective (Hammen, 1991). Some empirical evidence indeed suggests that depressogenic vulnerability, and sociotropy/dependency in particular, is only or mainly related to depression under conditions of negative life events (i.e., diathesis-stress perspective, e.g., Luyten et al., 2011), whereas other research showed that depressogenic vulnerability per se might make individuals more directly vulnerable to stress and subsequent depression (Priel & Shahar, 2000). As such, longitudinal research on interactions between depressive personality, stress, and attachment is an important area for future research.

### *Conclusion*

The current study revealed a relatively higher degree of intra-individual stability for depressogenic personality compared to adolescents' attachment dimensions. Associations between depressogenic personality orientations and change in attachment dimensions showed that adolescent autonomy was related to both anxious and avoidant attachment representations of the relationship with their mother. Moreover, changes in avoidant and anxious attachment mediated the relationship between autonomy and changes in depressive symptoms, suggesting a mediating role for attachment in the relationship between an autonomous personality orientation and the development of depressive symptoms.

Although the present study focused on non-clinical adolescents, some preliminary clinical guidelines can be forwarded. Both depressogenic personality and attachment may be considered important targets to prevent and treat depression in adolescents. Specifically, an important goal in treatment could be to learn adolescents not only to decrease maladaptive cognitions centered on autonomy-related themes like failure (i.e.,

depressogenic personality) but also how to identify people whom they can seek support from. Our findings suggest that attachment patterns, as they seem to be more susceptible to change, are a better target for therapeutic intervention (e.g., attachment-based family therapy by Diamond, Diamond & Hogue, 2007) than depressogenic personality, which is more stable and possibly more resistant to change. Nonetheless, one may wonder about the long-term efficiency of targeting only adolescents' attachment representations. Given that depressogenic personality seems to drive increases in insecure attachment representations, improvements in the quality of attachment representations may be short-lived as long as adolescents' personality vulnerability to depression is not fundamentally changed. Ultimately the current research seems to suggest that adolescents' depressogenic personality is also an important target for adequate prevention and intervention. Although it may be challenging to intervene in relatively stable dimensions of depressogenic personality (for instance through cognitive therapy, e.g., Moore & Blackburn, 1996), such an intervention in the attitudes and schemata related to autonomy may prove essential to obtain long-lasting change in vulnerability to depression.

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Table 1  
*Cohort-sequential Study Design*

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	Time		
	Wave 1	Wave 2	Wave 3
Cohort 1 (12 years)	12	13	14
Cohort 2 (13 years)	13	14	15
Cohort 3 (14 years)	14	15	16

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Table 2

*Means, Standard Deviations, Stability Coefficients, and Intercorrelations Among Variables*

Variable		1	2	3	4	5	<i>M</i>	<i>SD</i>
12 years								
Sociotropy	1	–					3.89	0.79
Autonomy	2	.36***	–				3.34	0.59
Anxiety	3	.21**	.50***	–			2.02	0.95
Avoidance	4	.08	.39***	.64***	–		2.47	1.00
Depression	5	.30***	.58***	.62***	.49***	–	10.07	6.97
13 years								
Sociotropy	1	–					3.73	0.69
Autonomy	2	.48***	–				3.32	0.66
Anxiety	3	.13†	.33***	–			2.20	0.95
Avoidance	4	.09	.35***	.56***	–		2.82	1.20
Depression	5	.12†	.38***	.49***	.53***	–	9.57	7.45

14 years								
Sociotropy	1	–					3.77	0.80
Autonomy	2	.51***	–				3.33	0.72
Anxiety	3	.23***	.41***	–			2.30	0.99
Avoidance	4	.10	.39***	.55***	–		3.01	1.12
Depression	5	.21**	.43***	.45***	.49***	–	11.45	7.12
15 years								
Sociotropy	1	–					3.66	0.73
Autonomy	2	.38***	–				3.43	0.73
Anxiety	3	.20†	.39***	–			2.33	1.08
Avoidance	4	-.06	.28**	.57***	–		3.17	1.20
Depression	5	.07	.46***	.34***	.47***	–	11.59	6.70
Rank-Order Stability								
Age 12 - Age 13		.27**	.48***	.50***	.62***	.77***		
Age 13 - Age 14		.41***	.46***	.41***	.67***	.65***		
Age 14 - Age 15		.62***	.63***	.68***	.74***	.60***		



Table 3

*Results of Latent Curve Analyses: Fit Indices and Parameter Estimates for the Linear Growth Measurement models*

Variable	$\chi^2/df$	CFI	RMSEA	SRMR	Initial level		Slope		Covariance
					<i>M</i>	Variance	<i>M</i>	Variance	Initial level-Slope
Sociotropy	3.00	0.89	.08	.09	3.84***	0.18*	-0.05	0.03	-.18
Autonomy	0.70	1.00	.00	.06	3.36***	0.17**	-0.00	0.01	.17
Anxiety	1.05	1.00	.01	.06	2.05***	0.57***	0.12***	0.13**	-.51*
Avoidance	2.83	0.97	.08	.07	2.51***	0.94***	0.24***	0.14**	-.41*
Depression	1.59	0.99	.05	.04	9.20***	43.50***	0.99***	3.43*	-.49*

*Note.*  $\chi^2$  = Chi-Square; *df* = Degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

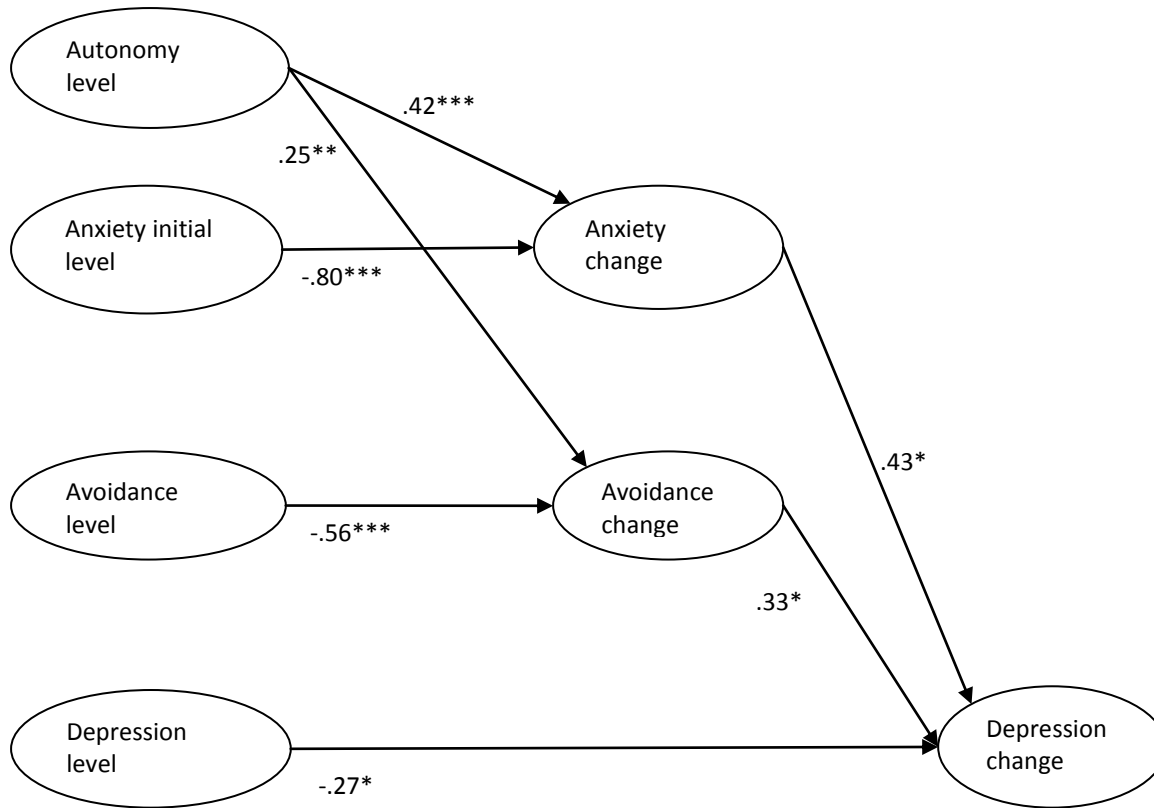


Figure 1. Overall mediational model: Effect of depressogenic personality on attachment and the development of depressive symptoms. Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

# Chapter 6

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## Attachment and Depressive Symptoms in Middle Childhood and Early Adolescence:

### Testing the Validity of the Emotion Regulation Model of Attachment<sup>1</sup>

The aim of this research was to test the validity of Shaver and Mikulincer's emotion regulation model of attachment in middle childhood and early adolescence. Further, we examined whether and how the constructs in the emotion regulation model would relate to depressive symptoms and perceived parenting (i.e., responsiveness and autonomy-support). In two separate cross-sectional studies ( $N = 339$  and  $N = 746$ ), evidence was found for the hypothesized specific associations between attachment anxiety and avoidance and emotion regulation strategies (dysregulation and suppression, respectively). Mixed evidence was found for the mediating role of emotion regulation in associations between attachment representations and depressive symptoms. In Study 2, it was found that perceived parental responsiveness and autonomy-support are related differentially to the attachment dimensions.

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<sup>1</sup> Brenning, K., Soenens, B., Braet, C., & Bosmans, G. (in press). Attachment and depressive symptoms in middle childhood and early adolescence: Testing the validity of the emotion regulation model of attachment. [*Personal Relationships*].

## Introduction

A central tenet in Bowlby's attachment theory (1980) is that early interactions with attachment figures form a critical context for later emotion regulation processes and subsequent adjustment. Building on this global formulation, Shaver and Mikulincer (2002) proposed a model detailing the dynamics involved in associations between specific attachment dimensions and emotion regulation strategies. In this model, it is assumed that two fundamental dimensions of attachment (i.e., anxiety and avoidance) are differentially related to two broad classes of emotion regulation strategies (i.e., hyperactivation and deactivation). The emotion regulation strategies associated with attachment anxiety and avoidance would, in turn, explain how attachment relates to psychopathology and to depressive symptoms in particular.

The first goal of the current study is to examine the validity of the emotion regulation model of attachment and its associations with depressive symptoms in a sample of middle childhood children and early adolescents. Second, we aimed to add to the limited literature on the role of parenting in the development of attachment representations in middle childhood and early adolescence (e.g., Karavasilis, Doyle, & Markiewicz, 2003) by examining associations between two fundamental dimensions of perceived parenting (i.e., responsiveness and autonomy-support) and attachment dimensions. The overarching aim of this research is to propose and test an integrated model of associations between perceived parenting, attachment representations, emotion regulation strategies, and depressive symptoms in middle childhood and early adolescence (see Figure 1).

*Attachment representations, emotion regulation, and psychopathology*

Attachment theory defines an attachment style as a pattern of relational expectations, emotions, and behaviors. Each person develops an attachment style on the basis of attachment experiences with caregivers. Individual differences in attachment can be most parsimoniously represented along two fundamental dimensions (e.g., Brennan, Clark, & Shaver, 1998), that is, attachment anxiety and attachment avoidance. Individuals high on attachment anxiety worry intensely about availability of the attachment figure and their own value to the caregiver. This dimension involves preoccupation with social support, jealousy, and vigilance concerning abandonment and rejection. People who score high on the avoidance dimension have a strong preference for emotional distance and feel uncomfortable with closeness or dependence on others. Instead, they display excessive strivings for self-reliance and independence. Bowlby (1980) postulated that a lack of secure attachment during infancy, childhood, or adolescence contributes to maladjustment and psychopathology. Empirical findings in research with adults (Mikulincer & Shaver, 2007) as well as children (e.g., Brumariu & Kerns, 2010) indeed support a relationship between both attachment anxiety and avoidance and depressive symptoms, although associations with avoidant attachment are typically less pronounced.

In an attempt to explain how individual differences in attachment anxiety and avoidance are related to differences in adjustment and well-being, Shaver and Mikulincer (2002) have proposed that the attachment system can be considered as an emotion regulation device. Dependent on the quality of attachment, people will adopt different and specific strategies to regulate emotional distress which would, in turn, affect their emotional and social adjustment. In this model of attachment and emotion regulation it is suggested that, once emotional distress activates the attachment system, individuals will

first evaluate whether the attachment figure is available. If a person thinks that his attachment figure will be available, he or she is securely attached and will seek proximity, which will help to relieve the emotional distress and which will deactivate the attachment system. When a person fears that the attachment figure is not available, he or she is likely to either hyperactivate or deactivate the emotional distress, depending on whether or not he or she sees proximity seeking as a viable option. Anxiously attached individuals would see proximity seeking as a viable option or maybe even as the only option. However, because they fear to be abandoned, anxiously attached individuals would use hyperactivating strategies (e.g., rumination or excessive complaining) to elicit increased attention from others and to ensure others' availability. Instead, people who are avoidantly attached would regard proximity seeking as a non-viable option. Because they learned that attachment behavior leads to rejection or anger instead of closeness or love, they use deactivating strategies (e.g., denial), where stress will be resolved by eliminating and suppressing negative emotions. This idea that anxious and avoidant attachment are associated with different emotion regulation strategies has been around for quite some time (e.g., Cassidy, 1994). Similar to the model of Mikulincer and Shaver, Cassidy (1994) noted that there is heightening of emotion (i.e., hyperactivation) in ambivalent dyads (i.e., anxious attachment) and minimization of emotion (i.e., deactivation) in avoidant dyads (i.e., avoidant attachment).

Although both hyperactivation and deactivation may have a function in coping with emotional distress, they represent derivative, suboptimal, and secondary emotion regulation strategies (Mikulincer, Shaver, & Pereg, 2003) that, in the long run, render individuals vulnerable to pervasive emotional problems. Hyperactivation may be harmful because it involves a very selective and narrow focus on specific emotions (e.g., sad emotions) that would

dominate all communication channels (Cicchetti, Ackerman, & Izard, 1995). The overwhelming experience of negative emotions associated with hyperactivation may in the long run interfere with the child's confidence in capacities to adequately cope with negative emotions. Deactivation may seem to have more short-term adaptive value compared to hyperactivation. However, it may still be disabling because a frequent reliance on deactivation would undermine the capacity to generate consistent processes for regulating emotions when deactivation is not an option (Cicchetti et al., 1995). Silk et al. (2003) note that disengagement or deactivation from a negative experience may interrupt exposure and extinction processes that help the individual habituate to an experience and its associated affect. Deactivating adolescents do little or nothing to change or adapt to a negative experience, thus maintaining high levels of anger and sadness. This association between maladaptive emotion regulation strategies and depressive symptoms has received strong empirical support in research with children and adolescents (e.g., Garber, Braafladt, & Zeman, 1991; Silk et al., 2003).

The model of attachment and emotion regulation is in essence a model of differential mediation, where associations between attachment anxiety and emotional problems would be at least partially mediated by hyperactivation and where associations between attachment avoidance and emotional problems would be at least partially mediated by deactivation. Although the two main parts of this model, that is, the part specifying relations between attachment dimensions and emotion regulation strategies (see Mikulincer & Shaver, 2007 for an overview) and the part specifying relations between emotion regulation strategies and emotional problems (see Silk et al., 2003 for an overview), received separate empirical support in research with adults and children, few studies have empirically examined the model of differential mediation as a whole. In one of the few cross-sectional studies testing the full

model of differential mediation, Wei, Vogel, Ku, and Zakalik (2005) found that the association between attachment anxiety and negative mood (depression and anxiety) was specifically mediated by emotional reactivity (i.e., an indicator of hyperactivation), while the association between attachment avoidance and negative mood was specifically mediated by emotional cutoff (i.e., an indicator of deactivation).

Importantly, most research on this model has been conducted with late adolescents (oftentimes college students) and adults. To the best of our knowledge, the mediating role of emotion regulation in the association between insecure attachment representations and depressive symptoms has not yet been investigated in samples of middle childhood children and early adolescents. A primary aim of this study is to examine the validity of the model in middle childhood and early adolescence. It is important to examine the validity of the emotion regulation model of attachment in this age period for several reasons. First, adolescence is a transitional period for the attachment system. Although parents continue to figure as a secure base in times of stress, there is a changing balance between attachment and exploratory behavior (Allen, 2008). Second, in middle childhood and early adolescence, important developments take place in processes of emotion regulation. For example, during the transition through adolescence physical, psychological, and social transformations elicit novel experiences of emotional arousal, and the maturation of many of the hormonal, neural, and cognitive systems thought to underlie the regulation of emotions takes place (Silk et al., 2003). Third, research has shown that the transition from middle childhood to early adolescence is marked by a steep increase in the prevalence of depressive symptoms and it has been argued that processes of attachment and emotion regulation may be involved in the development of a vulnerability for depressive symptoms during this age period (Petersen et al., 1993).



Although the nature and frequency of negative emotions may differ between pre- and early adolescents and adults and although some surface features of the attachment relationship with parents may also change from early adolescence to young adulthood, we anticipated that associations between attachment representations and emotion regulation would be generally similar in children as compared to adults. This would be the case because the developmental processes of anxiety and avoidance are fundamental to human development and relate to similar developmental processes across the lifespan (e.g., Blatt & Levy, 2003; Fraley, 2002). As a consequence, we do not expect substantial differences in the emotion regulation model of attachment between age periods. If age-related differences occur, we would even expect to find a stronger association between the processes of attachment, emotion regulation and depressive symptoms in pre- and early adolescence (compared to adulthood) because the development of these dynamics is more salient during this age period than in adulthood.

Given the few studies and the lack of longitudinal associations between attachment, emotion regulation, and depressive symptoms, one should also consider alternative causal mechanisms. For example, insecure attachment styles could lead to increased depressive feelings which in turn may lead to increased use of hyperactivating and deactivating emotion regulation strategies. Although these alternative views are not mutually exclusive, as insecure attachment, maladaptive emotion regulation strategies, and depressive symptoms may mutually reinforce each other across time, we focus in the current study on the sequence that is theoretically most plausible, that is, the sequence proposed by Shaver and Mikulincer (2002).

In this study, the concepts of hyperactivation and deactivation were studied and operationalized from the perspective of self-determination theory

(SDT; Deci & Ryan, 2000). In SDT, a distinction has been made between emotional dysregulation and emotional suppression. Dysregulation involves experiencing emotions but not having the capacity to regulate those emotions, while suppression involves children's attempts to avoid or minimize the experience of negative emotions (Ryan, Deci, Grolnick, & LaGuardia, 2006). The differentiation between emotional dysregulation and suppression is strikingly similar to the distinction between hyperactivation and deactivation.

*Perceived parenting as associated with attachment representations,  
emotion regulation and depressive symptoms*

Apart from outlining the dynamics involved in attachment representations and emotion regulation, attachment theory also provides a strong basis to make predictions about the role of parenting in children's attachment style, emotion regulation processes, and depressive symptoms. In the Bowlby-Ainsworth tradition, attachment relationships are considered to have two fundamental functions: the safe haven and the secure base. The attachment figure functions as a safe haven when children can turn to the attachment figure for comfort and reassurance in times of stress (Bowlby, 1988). The caregiver functions as a secure base when the child is supported and encouraged in the exploration of the social environment (Ainsworth, 1969). This distinction is analogous to the distinction between two fundamental parenting dimensions that are central in recent parenting research, that is, responsiveness (e.g., Davidov & Grusec, 2006) and autonomy-support (e.g., Grolnick, Deci, & Ryan, 1997). Specifically, to promote a secure attachment relationship, parents need to comfort, soothe, and protect their children (i.e., function as a safe haven by being responsive), but also permit and support autonomous action and exploration (i.e., function as a secure base from which the child can explore by supporting the child's autonomy). The inclusion of autonomy-support is important because attachment theory has

tended to focus on parental sensitivity. Although autonomy-support shows some common features with parental sensitivity (i.e., empathy), it also has unique features that relate to the encouragement to behave on the basis of self-endorsed motives and preferences (through the provision of choices and the provision of a meaningful rationale). Whipple, Bernier, and Mangeau (2009) argue that whereas sensitivity is particularly relevant to the provision of comfort (i.e., the safe haven function of attachment), autonomy-support is relatively more relevant to the encouragement of exploration (i.e., the secure base function of attachment). Thus, by including autonomy-support in our analyses we add to previous literature by attending more explicitly to the exploration side of attachment.

On the basis of attachment theory (Bowlby, 1988), a unique pattern of parenting correlates can be expected for each of the two attachment dimensions (i.e., anxiety and avoidance). Specifically, whereas avoidant attachment representations are thought to take root in a parenting climate characterized by low responsiveness and low autonomy-support, anxious attachment representations would develop in a parenting climate that is characterized by low autonomy-support but that is not necessarily low in responsiveness. Children who experienced a cold and rejecting parental attitude (low responsiveness), learn that their parents are not available in times of stress. This negative view of the attachment figure is characteristic of avoidant attachment. Instead, parents of anxiously attached children would be more unpredictable in their display of love and support. As a consequence, children would become anxious about losing their parents' support. Autonomy-inhibiting parenting is thought to be involved in both attachment anxiety and avoidance, yet may serve a different function in the development of these attachment dimensions (Mayseless, 2005). Whereas autonomy-inhibiting parenting may serve as a strategy to enforce closeness between

parent and child in the case of anxious attachment, it may serve as an intrusive tool to maintain distance between parent and child in the case of avoidant attachment. In line with this theorizing, research in middle childhood and adolescence has shown that a lack of responsiveness is more strongly related to attachment avoidance than to attachment anxiety (e.g., Karavasilis et al., 2003; Kerns, Tomich, Aspelmeier & Contreras, 2000). Also as expected, autonomy-inhibiting and controlling parenting has been shown to relate to both attachment anxiety and attachment avoidance (e.g., Karavasilis et al., 2003).

Apart from adding to the limited body of literature on associations between perceived parenting dimensions and attachment representations in middle childhood and early adolescence, this study also addresses the possible mediating role of attachment representations and attachment related emotion regulation strategies in the association between perceived parenting style and depressive symptoms. This is important because both low responsiveness as low autonomy-support are assumed to create a vulnerability to impaired emotion regulation capacities (e.g., Eisenberg et al., 2001) and to subsequent depressive symptoms (e.g., Barber, Stolz, Olsen, & Maughan, 2005).

### *The present studies*

On the basis of attachment theory (Shaver & Mikulincer, 2002), we expect children's insecure attachment representations to parents and depressive symptoms to be related through different and distinct emotion regulation strategies. More specifically, we hypothesize that the relation between anxious attachment representations and depressive symptoms is partially explained by dysregulation of emotions, whereas the association between avoidant attachment representations and depressive symptoms is partially explained by suppression of emotions. Second, we hypothesize that perceived parental responsiveness and autonomy-support will be meaningfully

related to the two attachment dimensions. Specifically, we expect (a) that low responsiveness is particularly strongly associated with avoidant attachment representations, while low autonomy-support is related to both anxious as avoidant attachment representations, (b) that both low responsiveness and autonomy-support are related to depressive symptoms, and (c) that the attachment dimensions and their associated emotion regulation strategies will mediate between perceived parenting and depressive symptoms. The full hypothesized model of this study is depicted in Figure 1.

Two cross-sectional studies based on separate samples of Caucasian participants were conducted to test our hypotheses. In Study 1, we examined (a) the specificity of associations between children's representations of attachment to mother and children's emotion regulation strategies and (b) the mediating role of emotion regulation strategies in associations between attachment representations and depressive symptoms in children. Study 2 aims to replicate these findings and to study the relationship between perceived parenting and attachment representations. Contrary to Study 1 and contrary to much research on attachment in middle childhood and adolescence, Study 2 addresses perceived parenting and attachment representations in both the mother-child and the father-child relationship.

## **Study 1**

### *Method*

#### *Participants and procedure*

Participants were 339 students (125 boys and 214 girls), aged between 12 and 14 years ( $M = 12.6$  years,  $SD = 0.67$ ), from two secondary schools in Flanders (Belgium). Concerning family status, 274 participants (80.8%) were from intact families whereas the remaining participants were from divorced families or families where one of the parents had deceased. Prior to the data

collection, a letter was sent to the parents with information about the purpose and method of the study. Passive informed consent was obtained from the parents and active informed consent was obtained from the children. The overall response rate was 80%. Child and adolescent questionnaires were administered during a class period. Students had 45 minutes to complete the survey.

### *Measures*

*Attachment representations.* The Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller & Brennan, 2000; Dutch translation by Buysse & Dewitte, 2004) was used to measure attachment. The ECR-R assesses the two dimensions central in Shaver and Mikulincer's model of attachment and emotion regulation, that is, attachment anxiety and avoidance. The anxiety scale (18 items) taps into feelings of fear of abandonment and strong desires for interpersonal merger (e.g., I worry about being abandoned). The avoidance scale (18 items) taps discomfort with closeness, dependence, and intimate self-disclosure (e.g., I prefer not to show my mother how I feel deep down). Items are rated on a 7-point scale ranging from 'not at all' to 'very much'. The reliability and validity of the anxious and avoidant attachment scale are well documented. Previous research with the ECR-R found high reliabilities for both subscales (e.g., Sibley & Liu, 2004) and has supported the stability and test-retest reliability of the ECR-R scores (e.g., Sibley, Fischer, & Liu, 2005).

The early adolescent participants completed a version of the ECR-R adjusted for middle childhood and early adolescence, that is, the Experiences in Close Relationships Scale-Revised Child version (ECR-RC; Brenning, Soenens, Braet, & Bosmans, 2011). A committee of researchers familiar with research on middle childhood and early adolescence slightly simplified the items so as to better reflect the developmental and reading level of early adolescent participants. The children were asked to rate the 18 anxiety and 18 avoidance

statements about their mother. Both subscales have strong internal consistency and predictive validity (Brenning et al., 2011). The construct validity of the ECR-RC was evidenced by theoretically plausible associations between the ECR-RC and other attachment measures such as the Attachment Security Scale (ASS), the Relationship Questionnaire (RQ), and the Preoccupied and Avoidance Coping Questionnaire (PACQ). Cronbach's alpha of the ECR-RC in the current study was .86 and .83 for anxious and avoidant attachment, respectively.

*Depressive symptoms.* The Children's Depression Inventory (CDI; Kovacs, 1985; Dutch translation by Timbremont & Braet, 2002) is an adaptation of the Beck Depression Inventory for use with children 7-17 years of age. The scale has 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. For each item, respondents choose one of three responses that best describes them (e.g. "I feel like crying every day"). Acceptable levels of internal consistency, test-retest reliability, and validity have been established (e.g., Saylor, Finch, Spirito, & Bennett, 1984). Cronbach alpha was .85.

*Emotion regulation.* Emotion regulation strategies were assessed using the emotion regulation inventory developed by Roth, Assor, Niemiec, Ryan & Deci (2009), which contains scales measuring the dysregulative, suppressive, and integrative modes of emotion regulation. For the purpose of this study, we only used the scales for dysregulation (6 items, e.g., "It is hard for me to control my negative emotions") and suppression (6 items, e.g., "I almost always try not to express my negative emotions"). Items are rated on a scale ranging from 1 ('completely disagree') to 5 ('completely agree'). Research has provided evidence for the internal structure and validity of these scales (e.g., Assor, Eilat, Roth, & Deci, 2009). Cronbach alpha was .69 for dysregulation and .72 for suppression.

## *Results*

### *Descriptive Statistics and Preliminary Analyses*

Table 1 shows means, standard deviations, and correlations among the study variables. The two attachment dimensions (i.e. anxiety and avoidance) as well as the two emotion regulation strategies (i.e., dysregulation and suppression) are positively related to depressive symptoms. Further, significant positive correlations are found between both insecure attachment dimensions and both emotion regulation strategies.

### *Primary Analyses*

To test the emotion regulation model of attachment, Structural Equation Modeling (SEM) with latent variables was conducted using LISREL 8.7 (Jöreskog & Sörbom, 1996). SEM with latent variables has two important advantages, namely (a) that it allows to control for error variance and (b) that it allows to determine the quality of the measurement model prior to the testing of structural models. The primary analyses followed the two-step procedure recommended by Anderson and Gerbing (1988). First, a confirmatory factor analysis (CFA) was used to test the quality of the measurement model of the study constructs. Second, different sets of structural models were tested. As suggested by Hu and Bentler (1999), we used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) as goodness of fit indices. Combined cutoff values of 0.95 for CFI and 0.06 for RMSEA indicate good fit. Further, we used the corrected scaled chi-square difference test to compare nested models. Data screening indicated partial non-normality of a number of indicators and, therefore, we used the asymptotic covariance matrix as input and inspected the Satorra-Bentler scaled chi-square (SBS- $\chi^2$ ; Satorra-Bentler, 1994). Finally, we controlled for the effects of gender, age and family structure by adding them as additional variables in all the subsequent analyses.



*Measurement model.* To model the five latent variables in the model (attachment anxiety, attachment avoidance, dysregulation, suppression, and depressive symptoms), three parcels were created for each construct, each consisting of a set of randomly selected items. No cross-loadings were allowed. Estimation of the measurement model with 15 indicators and 5 latent variables indicated excellent fit (see Table 2). All indicators had significant ( $p < .001$ ) and moderate to strong loadings on the latent factors, ranging from .45 to .90 (mean  $\lambda = .76$ ).

*Structural models.* A first structural model included associations between children's anxious and avoidant attachment representations and dysregulating and suppressing emotion regulation strategies, respectively. To control for the variance shared by the two emotion regulation strategies, the error variances of both latent variables were allowed to correlate. Estimation of this model (Model 1a) showed that anxious ( $\beta = .49, p < .001$ ) and avoidant attachment representations ( $\beta = .25, p < .01$ ) were significantly related to dysregulation and suppression, respectively. Next, cross-paths were allowed to test whether addition of the association between anxious attachment and suppression and between avoidant attachment and dysregulation would improve the fit (Model 1b). However, the cross-paths from anxious attachment to suppression ( $\beta = .19, p > .05$ ) and from avoidant attachment to dysregulation ( $\beta = -0.04, p > .05$ ) were non-significant and the fit of the model did not significantly improve ( $\Delta\text{SBS-}\chi^2(2) = 2.23, p > 0.05$ ).<sup>2</sup> In line with Holmbeck's (1997) recommendations to test for mediation, a second structural model included associations between attachment anxiety and avoidance and

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<sup>2</sup> A careful inspection of the correlations (see Table 1) could raise concerns about the strong correlation between dysregulation and avoidant attachment (which is not in line with the hypothesized unique association between avoidant attachment and suppression). However, a comparison between the unique effects model in which attachment anxiety and avoidance are uniquely associated to dysregulation and suppression respectively, and an alternative model in which avoidant attachment was also associated with dysregulation supported our unique association model.

depressive symptoms. Estimation of this model (Model 2a) showed that both anxious ( $\beta = .42, p < .001$ ) and avoidant attachment ( $\beta = .26, p < .01$ ) were significantly related to depressive symptoms. Next, a mediation model was tested in which attachment anxiety and attachment avoidance were only indirectly related to children's depressive symptoms through dysregulation and suppression, respectively (i.e., a full mediation model; Model 2b). Estimation of the full mediation model yielded acceptable fit, and each coefficient was significant ( $ps < .01$ ). However, adding a direct path from attachment anxiety and avoidance to children's depressive symptoms (i.e, partial mediation model; Model 2c) improved model fit. The initial path from attachment anxiety ( $\beta = .42, p < .001$ ) and attachment avoidance ( $\beta = .26, p < .01$ ) to depressive symptoms remained significant after entering emotion regulation as a mediator for anxious ( $\beta = .31, p < .01$ ) and avoidant attachment ( $\beta = .22, p < .05$ ). However, the paths from dysregulation ( $\beta = .16, p > .05$ ) and suppression ( $\beta = .13, p > .05$ ) to depressive symptoms were no longer significant, suggesting that the emotion regulation strategies did not mediate the associations between the attachment representations and depressive symptoms. The results of the final model are depicted in Figure 2.<sup>3</sup> Finally, to test interactive effects of attachment anxiety and avoidance we added interaction components to the models (following the procedures of Schumacker & Lomax, 2004). No significant interaction effects were found in the prediction of any of the study variables.

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<sup>3</sup> In an additional set of structural models, we examined the possibility of alternative directions of effects. Specifically, the model proposed by Mikulincer and Shaver was compared to (a) a model where emotion regulation strategies predicted attachment dimensions which, in turn, predicted depressive symptoms and (b) a model where attachment dimensions predicted depressive symptoms which, in turn, predicted emotion regulation strategies. Generally speaking, comparison of the models' AIC and CAIC indices showed an equal or better fit for the sequence as proposed by Mikulincer and Shaver (2002) compared to the alternative models which change the order of attachment, emotion regulation, and depression variables. Evidently, longitudinal or experimental research is needed to more adequately test the direction of effects involved in the emotion regulation model of attachment.

### *Discussion*

Study 1 aimed to investigate the role of emotion regulation strategies (dysregulation and suppression) as mediators in the relationship between insecure attachment representations to mother and depressive symptoms in children. In line with the emotion regulation model of attachment (Shaver & Mikulincer, 2002), results showed that anxious attachment was uniquely related to dysregulation, while avoidant attachment was uniquely related to suppression, at least after controlling for the variance shared by the two attachment dimensions. Furthermore, as expected, both anxious and avoidant maternal attachment representations were positively associated with depressive symptoms in children. However, findings did not support the mediation model because the associations between the emotion regulation strategies and depressive symptoms were not significant after taking into account direct associations between the attachment representations and depressive symptoms.

### **Study 2**

One possible explanation for the lack of mediation by emotion regulation in Study 1 is that we measured emotion regulation strategies about negative emotions in general rather than about sad and depression-relevant emotions in particular. It has been noted in the emotion regulation literature that the effects of emotion regulation strategies may differ depending on the type of negative emotions involved (Feng et al., 2009). Accordingly, it has been argued that it is important to identify specific and discrete emotions in order to increase theoretical precision and explanatory power (Cicchetti et al., 1995). In line with this recommendation, in Study 2 we focus on the regulation of sadness because emotion regulation of sad emotions is expected to be a more proximal factor for depressive symptoms. Similar to Study 1, we examine the

mediating role of emotion regulation strategies in the associations between attachment representations and depressive symptoms. Additionally, in Study 2 we examine attachment representations of both mothers and fathers and we examine associations between children's perceived parenting and the emotion regulation model of attachment. Finally, the sample in study 2 covers a broader age range compared to Study 1, which provides us with the opportunity to investigate possible moderating effects of age.

### *Method*

#### *Participants and procedure*

The participants of Study 2 were 746 students (292 boys; 438 girls; 16 missings), aged 8 to 14 years ( $M = 12$  years;  $SD = 1.23$ ) from three elementary and three secondary schools in Flanders (Belgium). Concerning family status, 569 participants (76.3%) were from intact families whereas the remaining participants were from divorced families or families where one of the parents had deceased. As in Study 1, a letter with information about the study was sent to the parents before the assessment. Passive informed consent was obtained from the parents and active informed consent was obtained from children. The participation rate was 67%.

#### *Measures*

*Attachment representations, depressive symptoms, and emotion regulation strategies.* As in Study 1, participants filled out the ECR-RC to assess the attachment dimensions. Whereas the children in Study 1 rated the statements about their mother, the children participating in Study 2 rated the items for both mothers and fathers. Cronbach alphas for attachment anxiety and avoidance were .87 and .92 for mother ratings and were .88 and .92 for father ratings. Depressive symptoms were again assessed using the CDI (see Study 1 for a description). Cronbach alpha was .88. Participants also completed the emotion regulation inventory that we used in Study 1. Contrary to Study 1,

however, the items were adjusted so as to specifically refer to sad emotions instead of to general negative emotions. For instance, the item “It’s hard for me to control my negative emotions” was changed to “It is hard for me to control my sadness”. Cronbach alpha was .70 for dysregulation and .75 for suppression.

*Parental responsiveness and autonomy-support.* To assess responsiveness, participants were administered a 7-item version of the acceptance/rejection subscale from the revised Child Report on Parenting Behavior Inventory (CRPBI; Schaefer, 1965). Responsiveness refers to the parent’s capacity to attune to their children’s needs, to provide security when a child experiences discomfort or stress, and to interact with their children in a warm, affectionate, and involved fashion. Parents with low scores on responsiveness are perceived by children as unavailable, distant, and cold. Example items are “My mother is able to make me feel better when I am upset” and “My mother smiles at me very often”. The acceptance/rejection scale from the CRPBI has been used as a valid and reliable measure of responsiveness in past research (Barber et al., 2005). In this study, Cronbach alpha was .87 for maternal ratings and .89 for paternal ratings.

Autonomy-support was assessed with 7 items from the ‘Autonomy-Support’ scale of the Perceptions of Parents Scale (POPS; Grolnick, Ryan, & Deci, 1991) and with the 8-item Psychological Control Scale – Youth Self Report (PCS-YSR; Barber, 1996). Autonomy-supportive parents try to know and understand the perspective of their children and encourage their children to behave on the basis of self-endorsed motives and preferences. A sample item of the Autonomy-Support scale reads: ‘My mother, whenever possible, allows me to choose what to do’. In contrast, controlling parents are parents who pressure their children to act, think, and feel in particular ways. Psychologically controlling parents use manipulative techniques like guilt induction, shaming,

and conditional loving to pressure their children (Barber & Harmon, 2002). A sample item of the PCS-YSR reads: 'My mother is always trying to change how I feel or think about things'. The psychometric quality and validity of both scales is well-established (Barber et al., 2005). Participants rated the items for both parenting scales on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) and rated the items separately for their mother and father. As in previous studies (e.g., Soenens & Vansteenkiste, 2005), a single composite score for autonomy-support versus control was computed by reverse-scoring the psychological control items and by averaging the scores of the autonomy-support and (reverse-scored) psychological control items. Cronbach alpha of this scale was .85 for maternal ratings and .84 for paternal ratings.

## *Results*

### *Descriptive Statistics and Preliminary Analyses*

Table 3 shows means, standard deviations, and correlations among the study variables. In both the maternal and paternal ratings, the two attachment dimensions and the two emotion regulation strategies are positively related to depressive symptoms. Significant positive correlations are also found between both maternal and paternal attachment representations and emotion regulation strategies. With regard to perceived parenting, both maternal as well as paternal responsiveness and autonomy-support were negatively related to anxious and avoidant attachment. Across maternal and paternal ratings, responsiveness and autonomy-support were also negatively related to depressive symptoms. Further, autonomy-support (but not responsiveness) showed systematic negative associations with both emotion regulation strategies.

### *Primary Analyses*

*Measurement model.* A CFA including the seven study variables (responsiveness, autonomy-support, attachment anxiety, attachment

avoidance, dysregulation, suppression, and depressive symptoms), each represented by three randomly created parcels, yielded acceptable fit for both the maternal and the paternal solution (Table 4). All indicators had significant ( $p < .001$ ) and moderate to strong loadings on the latent factors, ranging from .33 to .93 (mean  $\lambda = .80$ ) for the maternal ratings and ranging from .38 to .92 (mean  $\lambda = .81$ ) for the paternal ratings.

*Structural models.* Analogous to Study 1, a first structural model included associations between children's anxious and avoidant attachment representations and dysregulating and suppressing emotion regulation strategies, respectively. Estimation of this model (Model 1a) showed that both anxious ( $\beta = .36, p < .001$  for mother;  $\beta = .45, p < .001$  for father) and avoidant attachment representations ( $\beta = .20, p < .001$  for mother;  $\beta = .20, p < .001$  for father) were significantly related to dysregulation and suppression, respectively. Next, cross-paths were allowed to test whether addition of the association between anxious attachment and suppression and between avoidant attachment and dysregulation would improve model fit (Model 1b). The cross-path from anxious attachment to suppression was non-significant for the mother-child relationship ( $\beta = .05, p > .05$ ), but was significant for the father-child relation ( $\beta = .18, p < .01$ ). The cross-path from avoidant attachment to dysregulation was non-significant for both the mother-child ( $\beta = 0.07, p > .05$ ) and the father-child relationship ( $\beta = -.01, p > .05$ ). Adding these cross-paths did not significantly improve model fit for mother ratings ( $\Delta\text{SBS-}\chi^2(2) = .46, p > 0.05$ ) nor for father ratings ( $\Delta\text{SBS-}\chi^2(2) = 5.73, p > 0.05$ ), supporting the hypothesized specificity of associations between the attachment dimensions and the emotion regulation strategies. Accordingly, these cross-paths were not allowed in all subsequent models.

A second series of structural models was tested to examine the mediational role of emotion regulation strategies in associations between

attachment anxiety and avoidance and depressive symptoms. Estimation of an initial effects model (Model 2a) showed that both anxious ( $\beta = .29, p < .001$  for mother;  $\beta = .34, p < .001$  for father) and avoidant attachment ( $\beta = .33, p < .001$  for mother;  $\beta = .28, p < .001$  for father) were significantly related to depressive symptoms. Next, a mediation model was tested in which attachment anxiety and attachment avoidance were only indirectly related to children's depressive symptoms through dysregulation and suppression, respectively (i.e., a full mediation model; Model 2b). Estimation of the full mediation model yielded acceptable fit for the mother-child as well as for the father-child relationship, and all coefficients were significant ( $ps < .001$ ). Adding a path from attachment anxiety and avoidance to children's depressive symptoms (i.e., partial mediation model; Model 2c) improved the model fit ( $\Delta\text{SBS-}\chi^2(2) = 52.44, p < .001$  for mother;  $\Delta\text{SBS-}\chi^2(2) = 75.99, p < .001$  for father). The initial path from attachment anxiety to depressive symptoms ( $\beta = .29, p < .001$  for mother;  $\beta = .34, p < .001$  for father) was no longer significant for mothers ( $\beta = .16, p > .05$  for mother) but remained significant for fathers ( $\beta = .18, p < .05$ ). The initial path from attachment avoidance ( $\beta = .33, p < .001$  for mother;  $\beta = .28, p < .001$  for father) to depressive symptoms was slightly reduced yet remained significant after entering emotion regulation strategies as mediators ( $\beta = .29, p < .001$  for mother;  $\beta = .24, p < .001$  for father). Dysregulation ( $\beta = .28, p < .001$  for mother;  $\beta = .23, p < .001$  for father) and suppression ( $\beta = .21, p < .001$  for mother;  $\beta = .23, p < .001$  for father) were both significantly related to depressive symptoms. These findings are consistent with a pattern of partial mediation, where the attachment dimensions are related to depressive symptoms both directly and indirectly (through emotion regulation strategies).

In a third set of structural models, we tested whether perceived parenting is related to the variables involved in the emotion regulation model of attachment and to subsequent depressive symptoms. First, we tested a



model in which perceived responsiveness and autonomy-support were related to children's depressive symptoms. Estimation of this model (Model 3a) showed that autonomy-support was related to depressive symptoms in children ( $\beta = -.56, p < .001$  for mother;  $\beta = -.51, p < .001$  for father), whereas responsiveness was not significantly related to depressive symptoms ( $\beta = -.02, p > 0.05$  for mother;  $\beta = -.001, p > .05$  for father). Next, we examined the mediational role of the attachment dimensions and their associated emotion regulation strategies in the association between the perceived parenting dimensions and depressive symptoms. The results of this model are depicted in Figure 3. Estimation of a full mediation model (Model 3b) showed that responsiveness uniquely and negatively predicted avoidant attachment, whereas autonomy-support negatively predicted both anxious attachment and avoidant attachment representations.

The addition of direct paths from perceived parenting to depressive symptoms (i.e., a partial mediation model; Model 3c), showed that the former significant relationship between autonomy-support and depressive symptoms was reduced to non-significance for both mothers ( $\beta = -.08, p > .05$ ) and fathers ( $\beta = -.17, p > .05$ ) after taking into account attachment dimensions and emotion regulation strategies as mediators. Also, contrary to the models estimated without perceived parenting, anxious attachment ( $\beta = 0.11, p > .05$  for mother;  $\beta = .07, p > .05$  for father) and avoidant attachment ( $\beta = 0.16, p > .05$  for mother;  $\beta = .17, p > .05$  for father) are no longer directly associated with depressive symptoms, after incorporating the parenting dimensions and emotion regulation processes in the model. Together, the findings suggest that any direct associations between perceived parenting (and autonomy-support in particular) and depressive symptoms are fully mediated by the attachment dimensions and their associated emotion regulation strategies. To test interactive effects of attachment anxiety and avoidance we added interaction

components to the models (following the procedures of Schumacker & Lomax, 2004). No significant interaction effects were found in the prediction of any of the study variables.

Finally, a multigroup analysis was conducted to examine whether children's age moderated the final structural model comparing younger (8-12 years) to older children (12-14 years). Because the median age was 12 years, we used a cut-off of 12 years to split the sample into two age groups. In addition, these groups correspond roughly with the distinction between pre- and early adolescence. A multigroup analysis was conducted comparing a constrained model (in which the modeled pathways were set to be invariant across different age categories) with an unconstrained model (in which these parameters were freely estimated across different age categories). No significant differences were found between the model for younger children and the model for older adolescents ( $\Delta\text{SBS-}\chi^2(8) = 10.09, p > 0.05$ ).

### *Discussion*

First, as expected and consistent with the results of Study 1, both anxious and avoidant attachment representations were positively associated with depressive symptoms in children. This association was found to be differentially mediated by two maladaptive emotion regulation strategies (i.e., dysregulation and suppression). In line with the emotion regulation model of attachment (Shaver & Mikulincer, 2002), dysregulation was found to specifically mediate the relation between anxious attachment representations and depressive symptoms, while suppression was found to specifically mediate the association between avoidant attachment representations and depressive symptoms. Second, the testing of models in which perceived parenting was included showed that low responsiveness was primarily related to avoidant attachment, whereas low autonomy-support was related to both anxious and avoidant attachment. The direct relationships between autonomy-support and

depressive symptoms were fully mediated by the attachment dimensions and their related emotion regulation strategies.

### **General Discussion**

Although numerous studies examined the mediating role of emotion regulation in the association between attachment and depressive symptoms, to the best of our knowledge, only one study to date has examined whether the distinct emotion regulation strategies proposed in the model of Shaver and Mikulincer differentially mediate associations between insecure attachment dimensions and distress (Wei et al., 2005). The present study was the first to examine this model of differential mediation in middle childhood and early adolescence, a life period characterized by important and substantial changes in both the attachment system and emotion regulation development. In addition, we examined associations with two perceived parenting dimensions (responsiveness and autonomy-support) that are theorized to play a key role in attachment processes. Several interesting findings emerged.

First, we examined the specificity of the associations between insecure attachment representations (anxiety and avoidance) and emotion regulation strategies (dysregulation and suppression). According to the emotion regulation model of attachment, anxiously attached individuals often use hypervigilant screening of the environment to detect possible threat at all times and to assure availability of the attachment figure. As a consequence of this hypervigilance, anxiously attached individuals would be likely to be overwhelmed by their emotions and feel unable to effectively regulate their emotions (i.e., dysregulation). Avoidantly attached individuals would be likely to deactivate and suppress their emotions to avoid reactions of anger and rejection by the attachment figure. This hypothesis was clearly supported in the findings of both Study 1 and Study 2, as anxious attachment was uniquely associated with dysregulation and as avoidant attachment was uniquely

associated with suppression, at least when controlling for the variance shared between anxiety and avoidance. Although attachment avoidance showed a unique association with suppression after controlling for the shared variance between the variables, avoidant attachment was related to both emotion regulation strategies at the level of the raw correlations. Future research should further investigate the dynamics involved in the association between avoidant attachment and dysregulation. One reason for this association may be that there are limits to the suppressive strategies associated with avoidant attachment. Suppression might suffice to regulate an avoidant attached individuals' moderate emotions but this strategy could fail when one is confronted with very strong emotions (Mikulincer & Shaver, 2007). In other words, the suppressive strategies related to avoidant attachment may fail or backfire under conditions of high emotional arousal, thus necessitating the use of other derivative emotion regulation strategies such as dysregulation.

Another issue to clarify in future research is the meaning and nature of hyperactivation. Mikulincer and Shaver (2007) seem to present hyperactivation as a rather active and motivated strategy to call for attention and care. However, hyperactivation or dysregulation could also be understood as a relatively more passive and uncontrollable reaction to stress. According to Block (2002) under-control (an emotion regulation style similar to dysregulation) is a product of poor self-regulatory capacities originating in a chaotic or inconsistent parenting environment. The measure used in this study does not clearly differentiate between these two conceptualizations of hyperactivation or dysregulation. Future research could include assessments of both types of hyperactivation and could examine whether attachment anxiety is related to both of them or to one of them in particular.

Second, the current study examined whether emotion regulation strategies would mediate between the attachment representations and

depressive symptoms. Study 1 included an assessment of strategies to regulate overall negative emotions. Emotion regulation strategies to regulate general negative emotions did not mediate associations between attachment representations and depressive symptoms because emotion regulation strategies were no longer related to depressive symptoms after taking into account direct relations between the attachment dimensions and depressive symptoms. In Study 2, emotion regulation strategies, measured with specific reference to the regulation of sad emotions, did mediate the direct relations between the attachment dimensions and depressive symptoms. Although the coefficients from Study 1 and 2, based on two different samples, cannot be directly compared, it seems as if associations between emotion regulation strategies to regulate sad emotions and depressive symptoms are more pronounced than associations between depressive symptoms and emotion regulation strategies to regulate negative emotions in general. This finding is in line with the idea that processes of emotion regulation may differ depending on the type of emotion involved (Feng et al., 2009) and shows, specifically, that emotion regulation in the domain of sad emotions is a more proximal predictor of depressive symptoms than emotion regulation of general negative emotions. Moreover, in Study 2 the emotion regulation model of attachment did receive support, as both the associations of attachment anxiety and attachment avoidance with depressive symptoms were (partially) mediated by dysregulation of sad emotions and suppression of sad emotions, respectively. Note that we did not necessarily expect full mediation of the links between attachment dimensions and depressive symptoms. Feelings of worry about the availability of important others and their own value to others (anxious attachment) or feelings of discomfort with closeness or dependence on others (avoidant attachment) may in themselves lead to a sense of (actual or potential) abandonment or loneliness and accompanying depressive feelings.

In addition, other mediators are likely to additionally account for the association between the attachment dimensions and children's depressive symptoms.

A first interesting direction for future research is to consider the role of other emotion regulation strategies in addition to dysregulation and suppression. It may be particularly worthwhile to additionally study relatively more adaptive emotion regulation strategies. Although maladaptive emotion regulation strategies may explain how and why attachment experiences relate to psychopathology, adaptive emotion regulation strategies may better explain how attachment relates to positive adjustment (e.g., life satisfaction, vitality, and self-actualization). An interesting framework in this regard is Gross and Thompson's (2007) model of emotion regulation. One strategy, for example, that has received particular attention is the adaptive emotion regulation strategy of 'reappraisal'. Gross and Thompson (2007) consider caregiving influences pivotal in the development of this adaptive strategy. In line with this, secure attachment representations may be related to more adaptive emotion regulation strategies such as reappraisal, which in turn may be associated with positive adjustment. Another promising concept in this regard is emotional integration (Ryan et al., 2006), which refers to an open attitude towards emotions and a deliberate, thorough exploration of inner experiences. Emotional integration is hypothesized to develop within a responsive and autonomy-supportive family climate and to subsequently increase well-being and adaptive behavior (Roth et al., 2009; Ryan et al., 2006). Other possible candidates for mediation besides emotion regulation that have been suggested in the literature are dimensions of depressogenic personality (e.g., dependency and self-criticism, Luyten et al., 2007) and processes of maladaptive perfectionism (e.g., Wei, Heppner, Russell, & Young, 2006). Future research may also address the possibility that different emotion regulation strategies

relate to different manifestations of depressive symptomatology. For instance, whereas hyperactivation may be primarily related to irritable mood, suppression may be primarily related to sadness.

Third, this study aimed to contribute to the limited literature on parenting and attachment in middle childhood and early adolescence by examining associations between two theoretically relevant parenting dimensions (responsiveness and autonomy-support) and the variables involved in the emotion regulation model of attachment. Whereas parental responsiveness is characterized by displays of warmth and genuine love and by the provision of support in times of need and distress, parental autonomy-support would encourage the child to explore the outer world in a supportive fashion. Research in the attachment tradition has tended to focus rather exclusively on parental sensitivity as a precursor to quality of attachment. Recently, it has been argued that whereas sensitivity (which is analogous to responsiveness) primarily plays a role in the safe haven function of attachment (providing comfort and relieving distress), autonomy-support primarily plays a role in the secure base function of attachment (encouraging exploration by the provision of opportunities for initiative and choice) (Whipple, Bernier, & Mageau, 2009). Few studies, however, have considered both parenting dimensions simultaneously in relation to child attachment. The findings of this study attest to the importance of considering both sensitivity (responsiveness) and autonomy-support.

Based on theory and previous research findings (e.g., Karavasilis et al., 2003), we expected that low perceived parental responsiveness would primarily relate to avoidant attachment whereas perceived parental inhibition of autonomy would relate to both anxious and avoidant attachment representations. This differential pattern of associations was confirmed in Study 2, both for maternal and for paternal ratings of perceived parenting.

Parents of avoidantly attached children are perceived as chronically low on responsiveness, whereas parents of anxiously attached children are not necessarily seen as cold or unresponsive. We speculate that parents of anxiously attached children may sometimes be supportive (i.e., as long as children remain in close proximity) but may sometimes also be cold and rejecting (i.e., when children display signs of separation or independence). As a consequence of this inconsistent display of love, children might become anxious about losing their parents' affection. Future research should include a direct assessment of inconsistency of parental love to actually test this hypothesis.

Our findings are also in line with the notion that autonomy-inhibiting and intrusive perceived parenting may contribute to both anxious and avoidant attachment representations. Herein we argue that the inhibition of autonomy may serve a different function in anxious and avoidant attachment. In anxious attachment, autonomy-inhibiting parenting may serve to enforce closeness between parent and child whereas in avoidant attachment autonomy-inhibiting behavior may represent an intrusive attempt to increase distance between parent and child and to enforce the child to be independent (Mayseless, 2005). Future research may attempt to more directly assess these two different expressions of inhibition of autonomy. A recently introduced distinction between two domains of parental psychological control, one focusing on parent-child closeness (i.e., dependency-oriented psychological control) and one focusing on the child's independent achievement (i.e., achievement-oriented psychological control) may be useful in this regard (Soenens, Vansteenkiste, & Luyten, 2010). Research adopting this distinction would also allow for a more fine-grained analysis of differences between mothers' and fathers' roles in attachment and emotion regulation. Although developmental research has a history of focusing on the role of mothers at the



expense of fathers, researchers and clinicians have gradually come to recognize that both parents are important in the development of children (Connell & Goodman, 2002) and in the development of attachment representations in particular (Steele, Steele, & Fonagy, 1996). Still, the manifestation of maternal and paternal parenting may be somewhat different. Soenens et al. (2010), for instance, found that psychologically controlling parenting centers around different issues for mothers and fathers may, with dependency-oriented psychological control being more strongly characteristic of mothers and with achievement-oriented psychological control being more strongly characteristic of fathers. Given such findings, it is possible that the use of an undifferentiated measure of autonomy-inhibiting practices in the current study masked important differences between maternal and paternal socialization.

Apart from demonstrating that perceived parenting dimensions are significantly but differentially related to attachment representations, this study demonstrates the expected direct link between parenting (and autonomy-support in particular) and depressive symptoms (e.g., Barber et al., 2005). Further, the attachment dimensions and their associated emotion regulation strategies were found to mediate the relationship between perceived parenting dimensions and depressive symptoms. This is an important finding because most research on parenting and children's psychosocial development is main-effects research that fails to examine intervening processes in the relationship between parenting and psychological problems. The current findings suggest that one reason why non-responsive autonomy-inhibiting parenting creates a vulnerability to depressive symptoms is that such parenting sets the stage for dynamics of insecure attachment and subsequent unhealthy emotion regulation processes.

In sum, the current study found support for Shaver and Mikulincer's emotion regulation model of attachment and the theoretically expected

associations of this model with children's depressive symptoms and with perceived parenting. Parental responsiveness and autonomy-support are negatively associated with children's avoidant attachment representations, whereas anxious attachment in children is uniquely related to perceived parental autonomy-support. Further, children's anxious and avoidant attachment representations of the relationship with their parents, are positively related to dysregulation and suppression, respectively. Both dysregulation and suppression are in turn associated with an increased prevalence of depressive symptoms in children.

Although the current research yielded some unique findings, some limitations must be mentioned. First, because all the variables included in this study deal with children's internal representations of others and of their own feelings and because children are thought to be the most accurate reporters of such internal experiences all measures were child self-reports. However, common method variance may have led to an overestimation of associations in the model. Also, it remains unclear whether the strategies and regulatory processes endorsed by children and early adolescents on self-report measures adequately reflect their actual behaviors and feelings. A third problem with self-report measures is that they may be affected by self-presentational bias. For example, adolescents may underreport parental responsiveness and autonomy-support, given the salient developmental task of adolescents to obtain independence, and the associated rebellion against parental authority. For these reasons, future research may complement child self-reports with a variety of alternative sources of information such as for instance observational measures of parenting and parent reports of parenting and depressive symptoms.

Further, the current research did not investigate disorganized attachment, which may be the insecure attachment pattern most consistently

linked to childhood psychopathology (e.g., Green & Goldwyn, 2002). Despite the relative lack of validated assessments of disorganization for middle childhood and early teen years, future research may investigate (a) the relative contribution of attachment anxiety and avoidance and disorganized attachment to the prediction of adolescent psychopathology and (b) the potential mediating role of specific emotion regulation strategies in associations between attachment disorganization and depressive symptoms.

Another limitation is the cross-sectional design of the study. As such, our findings do not provide a sufficient base for inferring direction of effects, let alone for causality. The possibility exists, for instance, that parents respond in a less autonomy-supportive fashion to children with insecure attachment representations and to children with depressive symptoms. Cross-lagged longitudinal research is needed to determine the direction of effects in relations between parenting, attachment, emotion regulation and children's depressive symptoms. Also, because mediation is by its very nature a dynamic phenomenon, longitudinal research is also important to more accurately test the mediational sequence involved in the emotion regulation model of attachment.

Finally, it should be noted that our samples represent a non-clinical sample of Caucasian participants, the majority of whom live in intact families. This sets limitations on the generalizability of the findings. Future research relying on more heterogeneous samples (in terms of ethnicity, socio-economic status, and family structure) is needed to further test the validity of the model proposed here.

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Table 1

*Means, Standard Deviations, and Correlations among Study Variables (Study 1)*

Measure		1	2	3	4	5
Anxiety	1	–				
Avoidance	2	.46***	–			
Dysregulation	3	.40***	.26***	–		
Suppression	4	.15**	.19***	.11*	–	
Depression	5	.45***	.38***	.30***	.15**	–
<i>M</i>		2.52	3.09	2.84	3.03	36.92
<i>SD</i>		.92	1.02	.78	.79	6.47

Note. \* $p < .05$ , \*\* $p < .01$ .

Table 2

*Overview of the Fit Indices of the Estimated Models (Study 1)*

Model	Description	<i>df</i>	SBS- $\chi^2$	RMSEA	CFI
Model	Measurement model	110	162.79	0.04	0.98
Model 1a	Attachment and emotion regulation	74	106.16	0.04	0.98
Model 1b	Attachment and emotion regulation (cross-paths)	72	103.91	0.04	0.98
Model 2a	Attachment and depressive symptoms	42	14.16	0.00	1.00
Model 2b	Emotion regulation as mediator (full mediation)	114	194.37	0.05	0.97
Model 2c	Emotion regulation as mediator (partial mediation)	112	164.71	0.04	0.98

*Note.* *df* = Degrees of freedom; SBS- $\chi^2$  = Satorra-Bentler Scaled Chi-Square; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index.

Table 3  
*Means, Standard Deviations, and Correlations among Study Variables (study 2)*

Measure	1	2	3	4	5	6	7
1. Responsiveness	—						
2. Autonomy-support	.63**	—					
3. Anxiety	-.50**	-.66**	—				
4. Avoidance	-.78**	-.66**	.61**	—			
5. Dysregulation	-.10*	-.36**	.35**	.23**	—		
6. Suppression	-.06	-.23**	.19**	.19**	.24**	—	
7. Depression	-.44**	-.54**	.53**	.54**	.41**	.29**	—
<i>M</i>	4.09	3.97	2.02	2.64	2.71	3.07	36.53
<i>SD</i>	.68	.56	.78	1.01	.81	.85	6.78

*Note.* \* $p < .05$ , \*\*  $p < .01$ .

Table 4

*Overview of the Fit Indices of the Estimated Models (Study 2)*

Model	Description	Maternal Solution			
		<i>df</i>	SBS- $\chi^2$	RMSEA	CFI
	Measurement model	210	309.26	.03	.99
Model 1a	Attachment and ER	74	121.15	.03	.99
Model 1b	Attachment and ER (cross-paths)	72	119.77	.03	.99
Model 2a	Attachment and depressive symptoms	42	68.67	.03	1.00
Model 2b	ER as mediator (full mediation)	114	238.10	.04	.99
Model 2c	ER as mediator (partial mediation)	112	179.71	.03	.99
Model 3a	Parenting and depressive symptoms	45	84.13	.04	.99
Model 3b	Attachment and ER as mediators (full mediation)	220	395.57	.04	.99
Model 3c	Attachment and ER as mediators (partial mediation)	212	313.55	.03	.99

(continued)

Table 4

*Overview of the Fit Indices of the Estimated Models (Study 2) (continued)*

Model	Description	Paternal Solution			
		<i>df</i>	SBS- $\chi^2$	RMSEA	CFI
	Measurement model	210	392.11	.04	.99
Model 1a	Attachment and ER	74	171.36	.05	.98
Model 1b	Attachment and ER (cross-paths)	72	165.73	.05	.98
Model 2a	Attachment and depressive symptoms	42	88.10	.04	.99
Model 2b	ER as mediator (full mediation)	114	294.40	.05	.98
Model 2c	ER as mediator (partial mediation)	112	231.99	.04	.99
Model 3a	Parenting and depressive symptoms	45	82.50	.04	.99
Model 3b	Attachment and ER as mediators (full mediation)	220	488.13	.05	.98
Model 3c	Attachment and ER as mediators (partial mediation)	212	398.59	.04	.99

*Note.* ER = emotion regulation; *df* = Degrees of freedom; SBS- $\chi^2$  = Satorra-Bentler Scaled Chi-Square; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index.



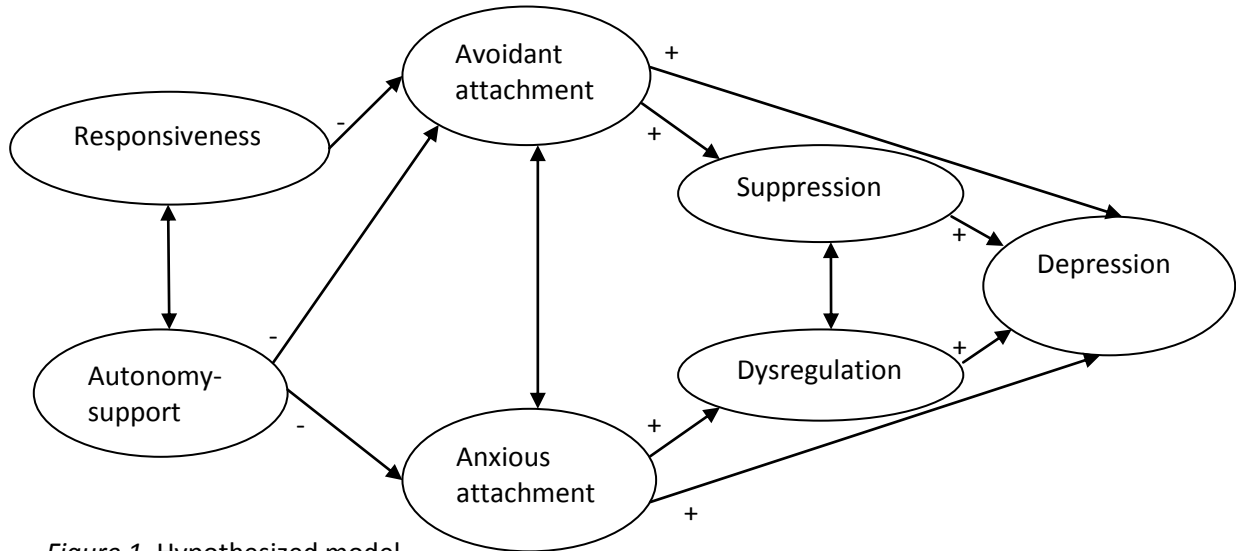


Figure 1. Hypothesized model.

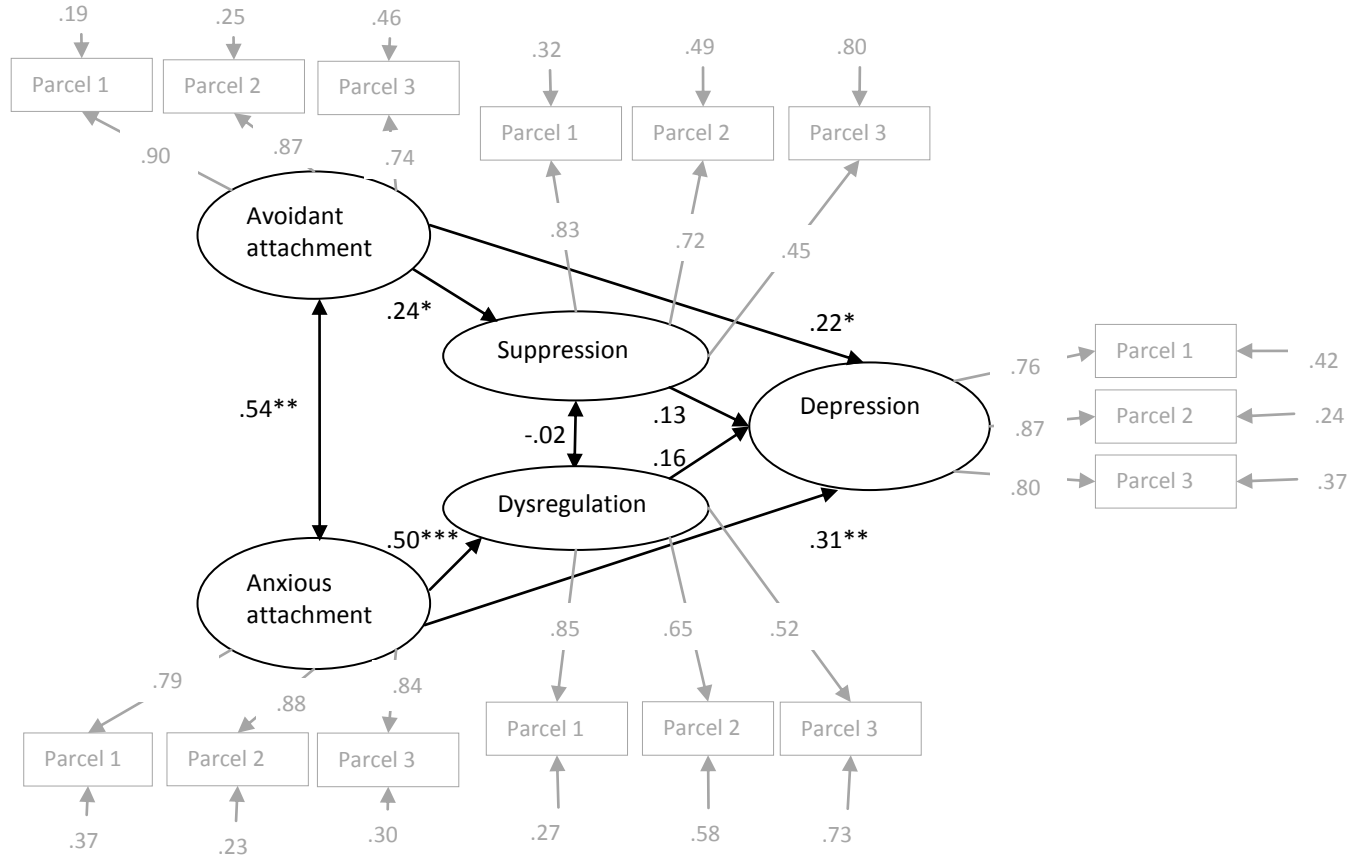


Figure 2. Structural model of the link between emotion regulation model of attachment and depressive symptoms in children and early adolescents (Model 3c). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

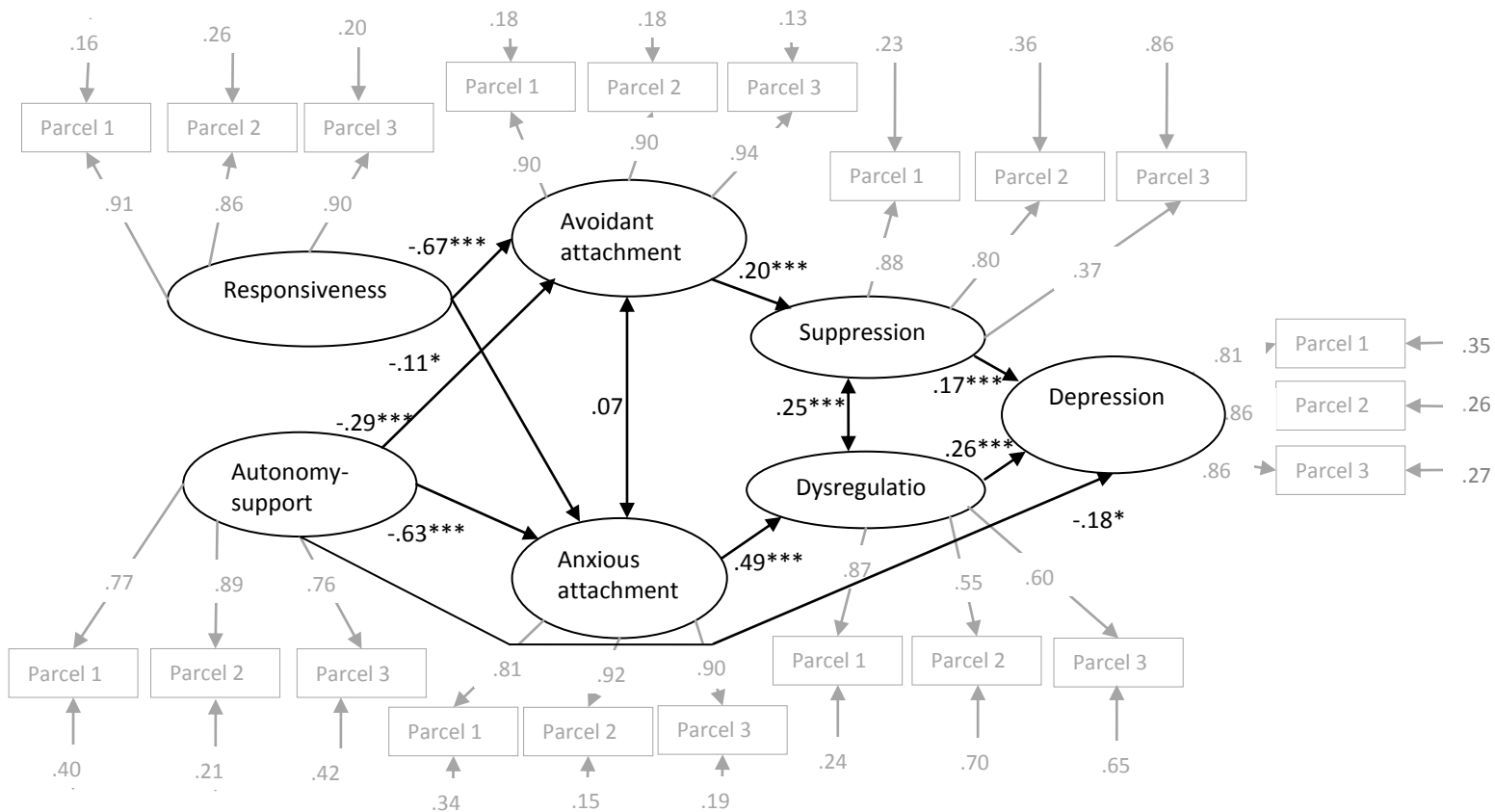


Figure 3. Structural model of relations among parenting, attachment, emotion regulation, and depressive symptoms (Parenting mother/Parenting father). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



## Chapter 7

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### **The emotion regulation model of attachment: An emotion-specific approach<sup>1</sup>**

This research applies the emotion regulation model of attachment to the regulation of specific emotions, namely sadness and anger, in early adolescents. The study investigates how attachment and accompanying emotion regulation strategies relate to both internalizing (depressive symptoms) and externalizing problems (aggressive behavior). Two separate cross-sectional studies ( $N=197$  and  $N=310$ ) supported different associations between attachment and emotion regulation strategies (i.e., dysregulation and suppression). For attachment avoidance, associations with emotion regulation strategies seem to depend on the specific type of emotion involved, whereas attachment anxiety related to dysregulation irrespective of the type of emotions. Further, Study 2 found that attachment anxiety and avoidance are associated with internalizing and externalizing problems via different emotion regulation strategies. Discussion focuses on the dynamics involved in associations between attachment, emotion regulation, and internalizing versus externalizing problems.

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<sup>1</sup> Brenning, K. & Braet, C. (in press). The emotion regulation model of attachment: An emotion-specificity approach. [*Personal Relationships*].

## Introduction

A central tenet in attachment theory is that early interactions with attachment figures form a critical context for later emotion regulation. Building on this global formulation, several models have been developed to detail the specific dynamics involved in associations between attachment dimensions and emotion regulation strategies (e.g., Cassidy, 1994; Shaver & Mikulincer, 2002). To date, previous work typically presents overall negative affect as the prominent emotion in psychological research, largely failing, however, to identify discrete emotions. This limited focus on discrete emotions contrasts with the commonly held assumption that associations between attachment and emotion-related processes may differ depending on the type of emotion involved (e.g., Niedenthal, Brauer, Robin, & Innes-Ker, 2002). The main aim of the current study is therefore to investigate an emotion-specific approach to the emotion regulation model of attachment. Further, as this model is deemed important to the development of psychopathology, this research also investigates associations between the emotion regulation model of attachment and both internalizing and externalizing symptoms.

### *Attachment and Emotion Regulation*

Attachment theory defines an attachment style as a pattern of relational expectations, emotions, and behaviors. Each person develops an attachment style on the basis of attachment experiences with caregivers. Based on research in both children and adults, individual differences in attachment are typically represented along two fundamental dimensions (e.g., Brennan, Clark, & Shaver, 1998), that is, attachment anxiety and attachment avoidance. Individuals with high attachment anxiety worry intensely about the availability of the attachment figure and their own value to the caregiver. Individuals with high attachment avoidance have a strong preference for

emotional distance and feel uncomfortable depending on others. Individuals who score low on both of these insecure attachment dimensions hold internalized representations of comforting attachment figures, which creates a continuing sense of attachment security. However, for the present study's research goals, we focus solely on psychological consequences of insecure attachment dimensions (i.e., attachment anxiety and avoidance) and associated emotion regulation processes.

Attachment theory (Bowlby, 1980) assumes that early interactions with attachment figures form a critical context for later emotion regulation processes. Following Bowlby (1980), several scholars have modeled specific dynamics involved in associations between attachment dimensions on the one hand and emotion regulation strategies on the other. For instance, both a child emotion regulation model of attachment (Cassidy, 1994) and a parallel model for late adolescents and adults (Shaver & Mikulincer, 2002) proposed that individuals with different types of insecure attachment engage in different predominant modes of regulating emotions. As ambivalent or anxiously attached individuals fear abandonment, they would predominantly use heightening or hyperactivating emotion regulation strategies (e.g., rumination or excessive complaining about negative emotions) to elicit increased attention from others and to ensure others' availability. Instead, people who are avoidantly attached would regard proximity seeking as a less viable option, because they learned that attachment behavior leads to rejection or anger instead of closeness or love. As a consequence, they would predominantly use suppressing or deactivating emotion regulation strategies (e.g., denial), where stress is resolved by eliminating negative emotions. Empirical research in both infants (e.g., Spangler & Grossmann, 1993) and adults (e.g., Mikulincer and Shaver, 2007) supports this idea that different attachment dimensions are associated with different emotion regulation strategies.

The distinction between heightening/hyperactivation and suppression/deactivation closely parallels a distinction that was made in Self-Determination Theory (Ryan, Deci, Grolnick, & La Guardia, 2006). In this paper, the concepts of heightening/hyperactivation and suppression/deactivation were studied and operationalized from the perspective of Ryan and colleagues (2006), that is, emotional dysregulation and emotional suppression respectively. Emotional dysregulation involves experiencing emotions but not having the capacity to regulate those emotions, while emotional suppression involves children's attempts to avoid or minimize the experience of negative emotions.

#### *An Emotion-specific Approach*

Although the emotion regulation model of attachment is supported in several studies, previous work generally focused on emotion regulation as a relatively nonspecific strategy rather than focusing on the specific regulation of discrete emotions. Further, when a distinction between specific emotions was found in the literature, equal hypotheses, rather than differential hypotheses, were formulated on the relationship between attachment and emotion regulation across a range of emotions. For example, anxious attachment would be associated with a heightening of all negative emotions (sadness, as well as anger) since anxiously attached individuals have learned that a heightening of negative emotions is needed to draw attention from others (Cassidy, 1994). On the other hand, avoidantly attached individuals, who feel uncomfortable with dependence on others, see both sadness and anger expressions as forms of investment in the relationship and consequently they suppress all negative affect, wanting to protect themselves from rejection.

The relative absence of well-grounded differential hypotheses on the association between attachment and emotion-specific emotion regulation strategies limits the emotion regulation model of attachment. This observation



builds on previous research which has showed that emotion management decisions may vary as a function of emotion type (e.g., Zeman & Shipman, 1997). Several emotion theories stress the influence of social context for understanding children's emotion-specific emotion management (e.g., Functionalist theory of emotions by for example Campos, Mumme, Kermoian, & Campos, 1994; Differential emotions theory by Izard, 1991). For example, the Functionalist emotion approach proposes that emotion regulation strategies serve an important social function for the child: maintaining children's social relationships (e.g., Campos et al., 1994). Through socialization, the child would learn the contingency between different emotion-specific emotion regulation strategies and parental responses (i.e., scripts regarding how social partners will respond to emotional displays) (Saarni, 1990). Further, Differential emotions theory suggests that each distress emotion has a distinct adaptive social function and elicits particular reactions from a social partner (Izard, 1991). More specifically, the child would learn that expressions of sadness convey requests for help and support from significant others, whereas expressions of anger tell another to withdraw or leave. Accordingly, research has showed that expressions of sadness were more beneficial to children than other emotions (e.g., anger) when eliciting support from caregivers (Buss & Kiel, 2004; Shipman, Zeman, Nesin, & Fitzgerald, 2003). Translated to the current emotion regulation model of attachment, it would be expected that anxious attachment (i.e., adolescents who aim to elicit support from attachment figures) would be associated with sadness heightening/hyperactivation and anger suppression/deactivation. Avoidant attachment (i.e., children who have a strong preference for emotional distance) would be associated with anger heightening/hyperactivation but sadness suppression/deactivation.

Although the present differential hypotheses based on emotion theories seem plausible (Functionalist theory of emotions and Differential emotions theory), other attachment literature would suggest differently. For example, Rholes, Simpson, and Orina (1999) argue that anxiously-attached individuals would not necessarily suppress anger, as they show often more difficulty controlling their anger (see also Mikulincer, 1998). Further, Fisher and Roseman (2007) propose that the function of anger may not always be to tell another to leave. Instead, they conceptualize the social function of anger as attaining a better outcome by forcing a change in another person's behavior. More specifically, a distinction can be made between functional anger (the anger of hope) and dysfunctional anger (the anger of despair) (Bowlby, 1973; Mikulincer, 1998).

Although, to the best of our knowledge, no study to date has explicitly examined emotion differences with regard to the emotion regulation model of attachment, some studies indeed show that the relationship between attachment dimensions and several emotion-related processes may differ depending on the type of emotion involved. For example, Niedenthal and colleagues (2002) found that attachment orientation appears to influence the perception of facial expressions of different emotions in different ways. The results show that individuals who tend to seek interpersonal interaction (i.e., anxious attachment) would more efficiently process evidence that invites such interaction, whereas individuals who eschew interpersonal interactions (i.e., avoidant attachment) avoid processing cues that invite such interactions.

#### *Attachment, emotion regulation, and Psychopathology*

Bowlby (1980) postulated that the loss of secure attachment during infancy, childhood, or adolescence contributes to the development of both internalizing and externalizing problems. Regarding internalizing problems, empirical findings in research with children (e.g., Brumariu & Kerns, 2010;

Finnegan, Hodges, & Perry, 1996), as well as adults (Mikulincer & Shaver, 2007), indeed support a relationship between both attachment anxiety and avoidance on the one hand, and depressive symptoms on the other. Regarding externalizing problems, empirical findings in both adolescents (e.g., Doyle & Markiewicz, 2005) and adults (Mikulincer & Shaver, 2007) indicate that insecure attachment is related to externalizing problems. However, no single insecure attachment dimension (anxious or avoidant attachment) has been linked consistently to externalizing symptoms. Whereas some studies have found that externalizing behaviors are associated with avoidant attachment (e.g., Riggs & Jacobvitz, 2002), others have found an association between these symptoms and anxious attachment (McElhane, Immele, Smith, & Allen, 2006).

To explain how individual differences in attachment anxiety and avoidance are related to psychopathology, the emotion regulation model of attachment has been the focus of previous psychopathology research (Cassidy, 1994; Shaver & Mikulincer, 2002). Dependent on the quality of attachment, people would adopt different strategies to regulate emotional distress which would, in turn, affect their emotional and social adjustment. Empirically, Wei, Vogel, Ku, and Zakalik (2005) found that the association between adult attachment anxiety and negative mood (depression and anxiety) was specifically mediated by emotional reactivity (i.e., an indicator of hyperactivation); while the association between adult attachment avoidance and negative mood was specifically mediated by emotional cut-off (i.e., isolation from others and their emotions when internal emotional experiences or interpersonal interactions are too intense, which is an indicator of deactivation). Further evidence for the mediating role of emotion regulation in the association between attachment and psychopathology has also been obtained from research with children and early adolescents (see Brenning, Soenens, Braet, & Bosmans, in press a). However, few studies have empirically

examined a mediation model including the regulation of specific emotions. The main goal of the current study is to examine the validity of the emotion regulation model of attachment applied to different kinds of emotions, and its associations with both internalizing and externalizing symptoms in a sample of early adolescent children.

### *The Present Studies*

To examine associations between attachment representations and emotion regulation strategies, examining different kinds of emotions rather than into overall negative emotion regulation, two cross-sectional studies based on separate samples of Caucasian adolescent participants were conducted. Study 1 examined the specificity of associations between children's representations of maternal attachment and children's emotion regulation strategies to regulate sad and anger emotions. Because of the anxiously attached individuals' social desire for closeness to the attachment figure, attachment anxiety was expected to be related to sadness dysregulation and anger suppression. On the other hand, attachment avoidance was hypothesized to be related to sadness suppression and anger dysregulation as avoidantly attached individuals aim to avoid closeness in relationships. Study 2 aimed to replicate any findings from Study 1, and to study the relationship between maternal attachment representations, emotion regulation, and internalizing as well as externalizing symptoms. Consequently, emotion regulation in the domain of sad emotions is expected to be more proximally associated with depressive symptoms, whereas emotion regulation in the domain of anger emotions is expected to be more proximally related to aggressive symptoms.

We examined the validity of our model in early adolescent children because all the systems involved in the hypothesized model (i.e, attachment, emotion regulation, and psychological problems) are assumed to undergo

dynamic and important changes during the transition from childhood to adolescence (see Brenning et al., in press a). For example, during adolescence, children start to expand their social roles beyond the family and spend more time with peers (Allen, 2008). Further, we focused on adolescents' representations of attachment to their mother because the mother-child relationship is still one of the most influential and visible relationships during this life period (see Allen, 2008). Next, sadness and anger were included as two types of negative emotion because these emotions are commonly experienced in childhood and adolescence and, when managed appropriately, are thought to help children achieve goals important to their intra- and interpersonal well-being (Zeman & Shipman, 1997).

## **Study 1**

### *Method*

#### *Participants and procedure*

Participants were 197 pupils (60% female) aged between 11 and 16 years ( $M = 13.54$  years,  $SD = 1.08$ ) from a secondary school in Flanders (Belgium). Concerning family status, 82% of the participants were from intact families whereas the remaining participants were from divorced families or families where one of the parents had deceased. Regarding their level of education, all secondary school children were following an academic track (i.e., were preparing for college or university studies). Prior to the data collection, a letter was sent to the parents with information about the purpose and method of the study. Passive informed consent was obtained from the parents and active informed consent was obtained from the children. The Ethical Committee of Ghent University reviewed and approved the protocol of this study. The overall response rate was about 60%. Child and adolescent

questionnaires were administered during a class period. Students had 45 minutes to complete the survey.

### *Measures*

*Attachment representations.* Participants completed a child version of the Experiences in Close Relationships Scale-Revised (ECR-R; Fraley, Waller & Brennan, 2000), further referred to as the ECR-RC (Dutch translation by Brenning, Soenens, Braet, & Bosmans, in press b). The ECR-RC assesses the two dimensions central in the emotion regulation model of attachment, that is, attachment anxiety and avoidance. The anxiety scale (18 items) targets feelings of fear of abandonment and strong desires for interpersonal merger (e.g., “I worry about being abandoned”). The avoidance scale (18 items) targets discomfort with closeness, dependence, and intimate self-disclosure (e.g., “I prefer not to show how I feel deep down”). Items are rated on a 7-point scale ranging from ‘not at all’ to ‘very much’. The children were asked to rate the 18 anxiety and 18 avoidance statements about their mother. Both subscales have strong internal consistency and validity (Brenning et al., in press b). Cronbach’s alpha for the ECR-RC in the current study was .91 and .93 for anxious and avoidant attachment, respectively.

*Emotion regulation.* Emotion regulation strategies were assessed using the emotion regulation inventory developed by Roth, Assor, Niemiec, Ryan and Deci (2009), which contains scales measuring the dysregulative, suppressive, and integrative modes of emotion regulation. For the purpose of this study, we only used the scales for dysregulation (6 items, e.g., “It is hard for me to control my negative emotions”) and suppression (6 items, e.g., “I almost always try not to express my negative emotions”). Further, the items were adjusted to specifically refer to emotions of sadness and anger, instead of general negative emotions. For instance, the item “It’s hard for me to control my negative emotions” was changed to “It is hard for me to control my

sadness/anger". Items were rated on a scale ranging from 1 ('completely disagree') to 5 ('completely agree'). Research has provided evidence for the internal structure and validity of these scales (e.g., Assor, Eilott, Roth, & Deci, 2009; Brenning, Soenens, Braet, & Bosmans, in press a, for English and Dutch translation respectively). Cronbach's alpha was .68 and .70 for dysregulation of sadness and anger, and .78 and .88 for suppression of sadness and anger, respectively.

## Results

### *Descriptive statistics and preliminary analyses*

Table 1 shows means, standard deviations, and correlations among the study variables. Comparison of the mean prevalence of the emotion regulation strategies and the type of emotion involved showed no significant differences for dysregulation of sadness versus anger ( $t = -0.59, p > .05$ ). Comparison of mean scores regarding suppression showed that the suppression of sad emotions seemed to be more prevalent than the suppression of anger emotions ( $t = 4.82, p < .001$ ). Regarding the correlations, attachment anxiety was positively related to dysregulation and suppression of both sadness and anger. Attachment avoidance, on the other hand, was positively associated with anger dysregulation and sadness suppression. Finally, a significant positive correlation was found between both insecure attachment dimensions.

Next, differences in the study variables in terms of children's age, gender and family structure were examined through a series of variance analyses. Children's age had a significant effect on adolescents' attachment avoidance [ $F(1, 185) = 7.74, p < .01$ ], with older adolescents reporting more avoidant attachment than younger children. Gender had a significant effect on adolescents' sadness dysregulation [ $F(1, 185) = 7.56, p < .01$ ] and sadness suppression [ $F(1, 185) = 7.38, p < .01$ ], with girls reporting higher scores on dysregulation of sadness and boys reporting higher scores on suppression of

sadness. Family status had a significant effect on sadness suppression [ $F(1, 185) = 4.63, p < .05$ ], with adolescents living in an intact family reporting lower scores on suppression of sadness than adolescents living in non-intact families (i.e., divorced families or families where one of the parents had deceased).

### *Primary analyses*

To test the emotion regulation model of attachment, Structural Equation Modeling (SEM) with latent variables was conducted using LISREL 8.7 (Jöreskog & Sörbom, 1996). SEM with latent variables has two important advantages, namely (a) that it allows control of error variance and (b) that it allows to assess the quality of the measurement model prior to the testing of structural models. The primary analyses followed the two-step procedure recommended by Anderson and Gerbing (1988). First, a confirmatory factor analysis (CFA) was used to test the quality of the measurement model of the study constructs. Second, different sets of structural models were tested. As suggested by Hu and Bentler (1999), we used the Chi-Square ( $\chi^2$ ), the Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA) as indices for good fit. Combined cutoff values for  $\chi^2/df$  of 2 or 3, for CFI of 0.90 and for RMSEA of .05 to .08 indicate reasonable fit (Kline, 2005). Further, we used the corrected scaled chi-square difference test to compare nested models. Data screening indicated partial non-normality of a number of indicators and, consequently, we used the asymptotic covariance matrix as input and inspected the Satorra-Bentler scaled chi-square (SBS- $\chi^2$ ; Satorra-Bentler, 1994). Finally, we controlled for the effects of the background variables (i.e., child age, gender and family status) in all primary analyses by allowing paths from the background variables to all the constructs included in the structural models.

*Measurement model.* To model the six latent variables in the model (attachment anxiety, attachment avoidance, dysregulation and suppression of



sadness, dysregulation and suppression of anger), three parcels were created for each construct, each consisting of a set of randomly selected items. No cross-loadings were allowed. Estimation of the measurement model (see Figure 1) with 18 indicators and 6 latent variables indicated good fit ( $\chi^2/df = 1.97$ ; RMSEA = .07; CFI = .94). All indicators had significant ( $p < .001$ ) and moderate to strong loadings on the latent factors, ranging from .47 to .95 (mean  $\lambda = .78$ ).

*Structural models.* A first structural model included associations between children's anxious and avoidant attachment representations and both dysregulation and suppression of sadness. To control for the variance shared by the two emotion regulation strategies, the error variances of both latent variables were allowed to correlate. Estimation of this model ( $\chi^2/df = 2.20$ ; RMSEA = .08; CFI = .95) showed that anxious ( $\beta = .62, p < .001$ ) and avoidant attachment representations ( $\beta = .43, p < .001$ ) were uniquely related to sadness dysregulation and suppression, respectively. The cross-paths from anxious attachment to sadness suppression ( $\beta = .06, p > .05$ ) and from avoidant attachment to sadness dysregulation ( $\beta = -0.20, p > .05$ ) were non-significant.

A second structural model included associations between children's anxious and avoidant attachment representations and both dysregulation and suppression of anger. To control for the variance shared by the two emotion regulation strategies, the error variances of both latent variables were allowed to correlate. Estimation of this model ( $\chi^2/df = 2.14$ ; RMSEA = .08; CFI = .95) showed that both anxious ( $\beta = .27, p < .01$ ) and avoidant attachment representations ( $\beta = .21, p < .05$ ) were significantly related to dysregulation of anger. The paths from anxious attachment ( $\beta = .22, p > .05$ ) and avoidant attachment ( $\beta = -.09, p > .05$ ) to anger suppression were non-significant.

A third structural model (see Figure 1), with good model fit ( $\chi^2/df = 1.91$ ; RMSEA = .07; CFI = .95), integrated the first two structural models.

Associations were included between children's anxious attachment representations and both sadness and anger dysregulation, and between children's avoidant attachment representations and sadness suppression and anger dysregulation. To control for the variance shared by the emotion regulation strategies, the error variances of all latent variables were allowed to correlate. Estimation of this model showed that anxious attachment was significantly related to dysregulation of sadness ( $\beta = .48, p < .001$ ), whereas avoidant attachment was associated with suppression of sadness ( $\beta = .46, p < .001$ ). Further, both anxious ( $\beta = .25, p < .01$ ) and avoidant attachment ( $\beta = .26, p < .01$ ) were related to dysregulation of anger emotions.

In sum, the findings of Study 1 yielded at least some support for differential associations between attachment dimensions (anxiety and avoidance) and emotion regulation strategies (dysregulation and suppression) depending on the type of emotion involved. The differential hypotheses based on emotion theories (Functionalist theory of emotions and Differential emotions theory) were supported, as attachment avoidance was related to sadness suppression and anger dysregulation. However, the results regarding attachment anxiety could not support an emotion-specific emotion regulation model of attachment. Attachment anxiety was positively related to dysregulation of both sadness and anger. As this research was, to our knowledge, the first to investigate an emotion-specific approach to the emotion regulation model of attachment, a second study was carried out to investigate whether these preliminary results could be replicated in a separate sample. Moreover, Study 2 investigated associations between the emotion regulation model of attachment and both internalizing and externalizing symptoms.

## Study 2

It has been noted in the literature that the emotion regulation model of attachment may be applied to investigate the development of psychological problems in children and adolescents (e.g., Brenning et al., in press a). In addition, anxiety and avoidance were found to be related to both internalizing and externalizing symptoms (Mikulincer & Shaver, 2007). Regarding discrete emotions, the prevalence of sadness is expected to be associated with youth depression (Forbes & Dahl, 2005), whereas frequent and intense anger is assumed to be associated with overt conduct problems involving reactive defiance and aggression (Caspi, 2000). In line with this, Study 2 focused on the mediating role of sadness emotion regulation strategies in associations between attachment representations and depressive symptoms, whereas the mediating role of anger emotion regulation strategies was investigated in the relation between attachment and aggressive behaviors.

### *Method*

#### *Participants and procedure*

The participants of Study 2 were 310 early adolescent children (59% female), aged 11 to 18 years ( $M = 14.26$  years;  $SD = 1.27$ ) from two secondary schools in Flanders (Belgium). Concerning family status, 65% of the participants were from intact families whereas the remaining participants were from divorced families or families where one of the parents had deceased. Regarding level of education, all participants were preparing for technical proficiencies. As in Study 1, a letter with information about the study was sent to the parents before the assessment. Passive informed consent was obtained from the parents and active informed consent was obtained from the participants. Again, the Ethical Committee of Ghent University reviewed and approved the protocol of this study. The participation rate was about 89%.

*Measures*

*Attachment representations and emotion regulation strategies.* As in Study 1, participants filled out the ECR-RC to assess the attachment dimensions. Cronbach's alphas in Study 2 were .91 and .93 for attachment anxiety and avoidance, respectively. Participants also completed the emotion regulation inventory that was used in Study 1. Cronbach's alpha was .64 and .76 for dysregulation of sadness and anger, and .69 and .80 for suppression of sadness and anger, respectively.

*Depressive symptoms.* The Children's Depression Inventory (CDI; Kovacs, 1985; Dutch translation by Timbremont & Braet, 2002) is an adaptation of the Beck Depression Inventory for use with children and adolescents. The scale has 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. For each item, respondents chose one of three responses that best describes them (e.g. "I feel like crying every day"). Acceptable levels of internal consistency, test-retest reliability, and validity had been established in earlier research (e.g., Saylor, Finch, Spirito, & Bennett, 1984; Timbremont & Braet, 2002, for English and Dutch translation respectively). Cronbach's alpha for the current study was .84.

*Aggressive behavior.* The Youth Self Report (YSR; Achenbach & Rescorla, 2001; Dutch translation by Verhulst, Van der Ende, & Koot, 1997) was administered to measure behavioural problem areas in youth, as reported by the child. The YSR includes 17 aggressive behavior items (items on internalizing symptoms were not administered for the current research), in which the presence of externalizing symptoms were scored from 0 ('not at all') to 2 ('very much'). A global aggressive behavior score was obtained. Reliability and validity of the questionnaire had been established in earlier research (Achenbach & Rescorla, 2001; Verhulst, et al., 1997, for English and Dutch translation

respectively). Cronbach's alpha in the present study was .83 for the YSR aggressive behavior scale.

## *Results*

### *Descriptive statistics and preliminary analyses*

Table 2 shows means, standard deviations, and correlations among the study variables. Comparison of the mean prevalence of the emotion regulation strategies and the type of emotion involved showed significant differences for both dysregulation ( $t = 3.28, p < .01$ ) and suppression ( $t = 4.33, p < .001$ ) of sadness versus anger. Dysregulation and suppression of sad emotions seemed to be more prevalent than dysregulation and suppression of anger emotions. The correlations among the study variables were generally similar to those in Study 1. Attachment anxiety was positively related to dysregulation and suppression of both sadness and anger (with the exception of anger suppression), whereas attachment avoidance was positively associated with anger dysregulation and sadness suppression. A significant positive correlation was also found between attachment anxiety and avoidance. Further, both these insecure attachment dimensions were positively related to depressive symptoms and aggressive behavior. Dysregulation of both sadness and anger was positively associated with both psychological outcome variables. Regarding suppression, sadness suppression was positively related to depressive symptoms, whereas anger suppression showed a unique negative association to aggressive behavior. Finally, a significant positive correlation was found between both psychological outcome variables.

Next, differences in the study variables in terms of children's age, gender and family structure were examined through a series of variance analyses. Children's age had a significant effect on adolescents' attachment avoidance [ $F(1, 282) = 5.70, p < .05$ ] and sadness suppression [ $F(1, 282) = 5.57, p < .05$ ], with older adolescents reporting more avoidant attachment and

suppression of sadness than younger children. Gender had a significant effect on adolescents' attachment anxiety [ $F(1, 282) = 4.24, p < .05$ ], attachment avoidance [ $F(1, 282) = 7.72, p < .01$ ], sadness dysregulation [ $F(1, 282) = 16.45, p < .001$ ] and sadness suppression [ $F(1, 282) = 6.43, p < .05$ ], with girls reporting higher scores on attachment anxiety and the dysregulation of sadness, and boys reporting higher scores on attachment avoidance and the suppression of sadness. Family status showed no significant effects on the study variables of Study 2. Nonetheless, as in Study 1, we controlled for the effects all background variables (i.e., child age, gender and family status) in all primary analyses by allowing paths from both variables to all the constructs included in the structural models.

#### *Primary analyses*

*Measurement model.* Acceptable fit was found for a CFA including the eight study variables (attachment anxiety, attachment avoidance, dysregulation and suppression of sadness, dysregulation and suppression of anger, depressive symptoms and aggressive behavior), each represented by three randomly created parcels (see Table 3). All indicators had significant ( $p < .001$ ) and moderate to strong loadings on the latent factors, ranging from .34 to .94 (mean  $\lambda = .77$ ). For figure clarity (see Figure 2), we only presented the factor loadings of the study variables that were not included in Figure 1. The remaining factor loadings were very similar to those presented in Figure 1.

*Structural models.* Analogous to Study 1 (see Figure 1), a first structural model included associations between children's anxious attachment representations and both sadness and anger dysregulation, and between children's avoidant attachment representations and sadness suppression and anger dysregulation. Again, we controlled for the effects of gender, age and family structure by adding them as additional predictors in all analyses. Estimation of this first model (Model 1, see Table 3) showed that anxious

attachment was significantly related to sadness dysregulation ( $\beta = .31, p < .001$ ), whereas avoidant attachment was associated with sadness suppression ( $\beta = .30, p < .001$ ). Further, both anxious ( $\beta = .22, p < .01$ ) and avoidant attachment ( $\beta = .21, p < .01$ ) were positively related to anger dysregulation.

A second series of structural models was tested to examine the mediational role of emotion regulation strategies in associations between attachment anxiety and avoidance, and both internalizing and externalizing symptoms. To control for the variance shared by depressive symptoms and aggressive behavior, the error variances of both latent variables were allowed to correlate. Estimation of an initial effects model (Model 2a) showed that both anxious ( $\beta = .50, p < .001$ ) and avoidant attachment ( $\beta = .23, p < .01$ ) were significantly related to depressive symptoms. Further, both attachment anxiety ( $\beta = .33, p < .001$ ) and avoidance ( $\beta = .20, p < .05$ ) were significantly associated with aggressive behaviour.

Next, a mediation model was tested in which insecure attachment was only indirectly related to internalizing and externalizing problems through emotion regulation strategies of sad and anger emotions, respectively. More specifically, in addition to the associations between attachment and emotion regulation (see Figure 1), the model included associations between both sadness suppression and dysregulation and depressive symptoms, and between both anger suppression and dysregulation and aggressive behavior. Estimation of the full mediation model (Model 2b) yielded acceptable fit. Attachment anxiety was significantly related to sadness dysregulation ( $\beta = .43, p < .001$ ) and anger dysregulation ( $\beta = .26, p < .001$ ), which were in turn related to depressive symptoms ( $\beta = .63, p < .001$ ) and aggressive behavior ( $\beta = .65, p < .001$ ), respectively. Attachment avoidance was significantly related to sadness suppression ( $\beta = .32, p < .001$ ) and anger dysregulation ( $\beta = .18, p < .01$ ), which were in turn related to depressive symptoms ( $\beta = .20, p < .05$ ) and aggressive

behavior ( $\beta = .65, p < .001$ ), respectively. Anger suppression was not significantly related to aggressive behavior ( $\beta = -.04, p > .05$ ). Next, cross-paths were allowed to test whether the addition of the associations between sadness emotion regulation strategies and externalizing symptoms and between anger emotion regulation strategies and internalizing symptoms would improve fit (model 2c). As can be seen in Table 3, the fit of the model did not significantly improve by adding them ( $\Delta\text{SBS-}\chi^2(4) = 4.79, p > 0.05$ ).

Further, direct paths were added from attachment anxiety and avoidance to children's depressive and aggressive symptoms. This partial mediation model (Model 2d) did improve the model fit ( $\Delta\text{SBS-}\chi^2(4) = 61.28, p < .001$ ). As can be seen in Figure 2, the initial path from attachment anxiety ( $\beta = .50, p < .001$ ) and attachment avoidance ( $\beta = .23, p < .01$ ) to depressive symptoms remained significant after entering sadness emotion regulation strategies as mediators ( $\beta = .33, p < .001$  for attachment anxiety;  $\beta = .29, p < .01$  for attachment avoidance). The initial path from attachment anxiety ( $\beta = .33, p < .001$ ) and attachment avoidance ( $\beta = .20, p < .05$ ) to aggressive symptoms reduced after entering anger emotion regulation strategies as mediators ( $\beta = .17, p < .05$  for attachment anxiety;  $\beta = .15, p > .05$  for attachment avoidance). These findings are consistent with a pattern of partial mediation for internalizing problems to full mediation for externalizing problems. As such, attachment dimensions were related to psychological problems both directly and indirectly through emotion regulation strategies.

In sum, Study 2 suggested differential associations between attachment dimensions (anxiety and avoidance) and emotion regulation strategies (dysregulation and suppression) depending on the type of emotion involved. The differential hypotheses, based on emotion theories (Functionalist theory of emotions and Differential emotions theory), were supported as attachment avoidance was related to sadness suppression and anger



dysregulation. However, the relationship between attachment anxiety and emotion regulation strategies did not differ depending on the kind of emotion involved (i.e., dysregulation of both sadness and anger). Regarding psychological problems, Study 2 found that attachment anxiety and avoidance were associated with internalizing and externalizing problems both directly and indirectly (Sobel, 1982) via different emotion regulation strategies. Attachment anxiety was indirectly related to adolescent depressive symptoms through sadness dysregulation ( $t = 3.05, p < .01$ ), and to adolescent aggressive behavior through anger dysregulation ( $t = 2.64, p < .01$ ). On the other hand, the indirect relationship between attachment avoidance and psychological symptoms via emotion regulation was only found for the association between avoidant attachment and aggressive behavior through anger dysregulation ( $t = 2.65, p < .01$ ).

## Discussion

Although numerous studies have examined associations between attachment and emotion regulation strategies (e.g., Wei et al., 2005), the present research was the first to examine an emotion-specific emotion regulation model of attachment applied to the prevalence of internalizing and externalizing symptoms. Based on two separate cross-sectional studies with early adolescents, several interesting findings emerged. First, we examined associations between insecure attachment representations (i.e., anxiety and avoidance) and emotion regulation strategies (i.e., dysregulation and suppression) to regulate sad and anger emotions. According to emotion theories (Functionalist theory of emotions by Campos et al., 1994; Differential emotions theory by Izard, 1991), different links between attachment representations and emotion regulation strategies may be expected, depending on the type of emotion involved. Anxious attachment was expected to be related to sadness dysregulation, as anxiously attached individuals want

to elicit increased attention from others and overt feelings of sadness seem to be beneficial in this regard (Shipman et al., 2003). On the other hand, anxious attachment was hypothesized to be associated with suppression of anger, as overt feelings of anger would tell another to leave. Although the association between attachment anxiety and sadness dysregulation was supported in both Study 1 and Study 2, the association between anxious attachment and anger suppression was not corroborated. In contrast, the results of Study 1 and 2 showed a significant positive relationship between attachment anxiety and anger dysregulation. Two hypotheses can be put forward to explain this finding.

First, the association between anxious attachment and both sadness and anger dysregulation could be explained by the general emotion regulation model of attachment as outlined by Cassidy (1994) and Shaver and Mikulincer (2002). According to these scholars, anxiously attached individuals typically feel unable to handle their own negative emotions and need others to resolve their stress. However, as others are expected to be inconsistently responsive in times of stress, anxious attachment is thought to be associated with hypervigilant screening of the environment to detect threat and assure availability of the attachment figure. As a consequence of this hypervigilance, anxiously attached individuals would be likely to be overwhelmed by negative emotions and feel unable to effectively regulate their emotions (i.e., dysregulation of both sadness and anger). Nonetheless, it is possible that anxiously attached individuals do feel an underlying desire to withhold their anger (congruent with the Functionalist and Differential emotions theory), but cannot suppress it (Mikulincer, 1998; Rholes et al., 1999). As the current study did not directly measure those underlying intentions, further research is needed to investigate this hypothesis.

A second possible explanation suggests that parents of anxiously attached children may socialize both sadness and anger dysregulation by reacting inconsistently to negative emotions. Anxiously attached children would dysregulate both anger and sadness to draw attention and solicit care. Accordingly, they often learned that a relaxed and calm attitude in the presence of their parents forms a higher risk for loss of contact with the inconsistently available caregiver. As such, under certain circumstances, anger may have the social function of attaining availability from the other (Fisher & Roseman, 2007). In sum, dysregulation of both sadness and anger could be learned and thus expected in anxiously attached children.

Regarding avoidant attachment, emotion theories (Functionalist theory of emotions by Campos et al., 1994; Differential emotions theory by Izard, 1991) assume that individuals who prefer emotional distance show anger dysregulation and sadness suppression. This hypothesis was supported in both Study 1 and Study 2 and is also in line with previous research conclusions. Avoidantly attached individuals would not suppress their feelings of anger, as anger would be associated with dominance in interaction and would keep others at a distance (Zeman & Shipman, 1997). In contrast, avoidantly attached individuals would suppress feelings of sadness, as emotions of sadness display powerlessness and would elicit protection from others (Jenkins & Ball, 2000; Timmers, Fischer, & Manstead, 1998).

In contrast to emotion theories, the general emotion regulation model of attachment (Cassidy, 1994; Shaver & Mikulincer, 2002) proposed that avoidantly attached individuals would suppress both sadness and anger. As it is reasonable to assume that overt feelings of anger could lead to rejection by the attachment figure, we put forward the question whether anger dysregulation is a functionalist decision (i.e., keep others at a distance) or whether it is a result of inefficiency of one's suppressive strategies to regulate

anger emotions in particular (Mikulincer & Shaver, 2007). As can be derived from the current study's mean scores (see Table 1 and 2), individuals more often suppress feelings of sadness compared to feelings of anger. Further, previous research has indicated that the perception of controllability over emotion is an important determinant in children's emotion management decisions (Zeman & Shipman, 1996). Accordingly, Zeman and Shipman (1997) found that children and adolescents have stronger perceptions of self-efficacy in controlling expressions of sadness than of anger. As such, it is possible that avoidantly attached individuals dissemble sadness more than anger because they perceive that they lack the skills to effectively mask expressions of anger. Again, further research is needed to investigate those underlying intentions.

A second main aim of the current research was to examine whether emotion-specific emotion regulation strategies would mediate between attachment and both internalizing and externalizing symptoms. In Study 2, emotion regulation strategies measured to probe the regulation of sad and anger emotions, did mediate the direct relations between attachment and psychological problems. More specifically, the direct relationship between attachment anxiety and depressive symptoms was partially mediated by sadness dysregulation, whereas the direct relationship between attachment anxiety and aggressive behavior was partially mediated by anger dysregulation. Consequently, emotion regulation in the domain of sad emotions seems to be more proximally associated with depressive symptoms, whereas emotion regulation in the domain of anger emotions seems more proximally related to aggressive symptoms. This is in line with previous studies suggesting that, although the tendency to experience anger or irritability may precede the depressive experience, sadness is the central emotion bias linked to depression (e.g., Feng et al., 2009). Further, although we did not find evidence for emotion regulation as a mediator in the relationship between avoidant attachment and

depressive symptoms, the direct relationship between avoidant attachment and aggressive behavior was fully mediated by anger dysregulation. This mediation via anger dysregulation provides further support for the emotion-specific emotion regulation model of attachment (Feng et al., 2009). Translated to practice, anxiously attached individuals would be at higher risk of both internalizing and externalizing symptoms by showing dysregulating strategies to regulate both sadness and anger, respectively. On the other hand, avoidantly attached individuals would show dysregulation of anger in particular, which heightens the risk of aggressive behavior.

In contrast to previous research (e.g., Cicchetti, Ackerman & Izard, 1995), the relationship between emotional suppression and psychological problems was non-significant. Possibly, suppressive emotion regulation strategies may have more short-term adaptive value compared to dysregulating emotion regulation strategies. However, emotional suppression may still be disabling because a frequent reliance on deactivation could undermine the capacity to generate consistent processes for regulating emotions when deactivation is not an option (Cicchetti et al., 1995). Previous empirical studies highlighted the long-term inefficiency of avoidant peoples' suppression (e.g., Gillath, Bunge, Shaver, Wendelken, & Mikulincer, 2005; Mikulincer, Dolev, & Shaver, 2004). For example, Mikulincer and colleagues (2004), found that avoidantly attached participants are able to suppress negative thoughts under low cognitive load (i.e., benefits of suppressing strategies), but were more likely to activate negative self-representations under high cognitive load (i.e., psychological cost of suppressing strategies).

#### *Limitations and Implications for Future Research*

Although the current research yielded some unique findings, some limitations warrant attention. First, because children are thought to be the most accurate reporters of internal experiences, all measures were child self-

reports. However, common method variance may have led to an overestimation of associations in the model. Also, it remains unclear whether the strategies and regulatory processes endorsed by early adolescents on self-report measures adequately reflect their actual behaviors and feelings (e.g., self-presentational bias). Although this can reflect real intentions, future research may complement child self-reports with alternative sources of information (e.g., observational measures or parent reports).

Second, the present study's cross-sectional design does not provide a sufficient basis for inferring direction of effects, let alone causality. For instance, the suppression of sad emotions might lead to more avoidant attachment interactions. Note that internal working models might be relatively flexible and may be revised or modified in the light of new and ongoing experiences (Fraley, 2002), this is especially true for the current age group of adolescents (e.g., focus on new attachment partners; Allen, 2008). Future cross-lagged longitudinal research is needed to determine the direction of effects in relations between attachment, emotion regulation and children's psychological symptoms.

Further, an explicit focus on gender, age, interpersonal context and social-cultural context may be of interest for future emotion-specific emotion regulation research. First, moderation by gender may be expected, given that boys and girls are assumed to be socialized differently to regulate emotional experiences as a result of parents' explicit or implicit gender schemas (Morris, Silk, Steinberg, Myers, & Robinson, 2007). Next, the current study's preliminary analyses stress the importance of age as older participants showed more avoidance as compared to younger participants. Interestingly, age differences could be partly due to developmental expression and experience of emotion (age-effect), but also partly due to the transfer of attachment functions from parents to peers (person-effect). Regarding interpersonal context, it is

important to know with whom adolescents are using particular emotion regulation strategies. For example, it is often adaptive to express sadness to close communal relationships but not to acquaintances (Graham, Huang, Clark, & Helgeson, 2008). Further, regarding cultural differences, overall processes between attachment, emotion regulation and psychopathology might be expected to be universal. However, from a Functionalist perspective, emotional functioning cannot be divorced from its contextual meaning (Zeman, Klimes-Dougan, Cassano, & Adrian, 2007). For example, cross-cultural research has shown that familiar emotions carry significantly different meanings in different societies (see Oatley, 1993).

### *Conclusion*

The current cross-sectional studies yielded some support for the emotion-specific approach to the emotion regulation model of attachment. Anxious and avoidant attachment showed relatively specific associations with sadness dysregulation and suppression respectively, whereas both attachment dimensions are equivalently related to anger dysregulation. In turn, these maladaptive emotion regulation strategies were found to account, at least partially, for associations between maternal attachment representations and both depressive and aggressive symptoms. In terms of clinical implications, our findings may suggest that both attachment patterns and emotion regulation behaviors are a good target for therapeutic intervention. Although the role of emotion regulation processes is well-recognized in several well investigated intervention programs (e.g., Emotion-focused Therapy by Greenberg, 2004), the role of attachment has frequently remained under-exposed in the treatment of internalizing and externalizing problems in adolescence (e.g., attachment-based family therapy by Diamond, Diamond, & Hogue, 2007). Ultimately the current research seems to suggest that both attachment and emotion regulation are important targets for adequate prevention and

intervention, as improvements in the quality of emotion regulation strategies may be short-lived when attachment representations are not fundamentally changed.



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Table 1

*Means, Standard Deviations, and Correlations among Study Variables (Study 1)*

	M	SD	1	2	3	4	5
1 Anxious attachment	2.16	0.98	-				
2 Avoidant attachment	3.14	1.21	.56***	-			
3 Dysregulation Sadness	2.83	0.72	.39***	.14	-		
4 Dysregulation Anger	2.86	0.86	.35***	.34***	.55***	-	
5 Suppression Sadness	2.99	0.78	.24**	.38***	.07	.15*	-
6 Suppression Anger	2.67	0.82	.17*	.04	.05	-.14*	.30***

Note. \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .



Table 2

*Means, Standard Deviations, and Correlations among Study Variables (Study 2)*

	M	SD	1	2	3	4	5	6	7
1 Anxious attachment	2.41	1.05	-						
2 Avoidant attachment	3.24	1.27	.52***	-					
3 Dysregulation Sadness	2.92	0.72	.31***	.02	-				
4 Dysregulation Anger	2.77	0.80	.31***	.29***	.52***	-			
5 Suppression Sadness	3.08	0.70	.14*	.29***	-.05	.06	-		
6 Suppression Anger	2.86	0.78	.01	.00	-.02	-.13*	.32***	-	
7 Depressive symptoms	12.97	6.38	.53***	.41***	.30***	.48***	.17**	-.09	-
8 Aggressive behaviour	7.12	4.77	.36***	.37***	.22***	.54***	.07	-.21***	.56***

Note. \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

Table 3

*Overview of the Fit Indices of the Estimated Models (Study 2)*

Model	Description	SBS- $\chi^2/df$	RMSEA	CFI
Model	Measurement model	1.68	0.05	0.97
Model 1	Attachment and emotion regulation	1.57	0.05	0.97
Model 2a	Attachment and psychological symptoms	1.94	0.06	0.99
Model 2b	Emotion regulation as mediator (full mediation)	1.83	0.06	0.96
Model 2c	Emotion regulation as mediator (full mediation, cross-paths)	1.84	0.06	0.96
Model 2d	Emotion regulation as mediator (partial mediation)	1.66	0.05	0.97

*Note.* SBS- $\chi^2$  = Satorra-Bentler Scaled Chi-Square; *df* = Degrees of freedom; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index.

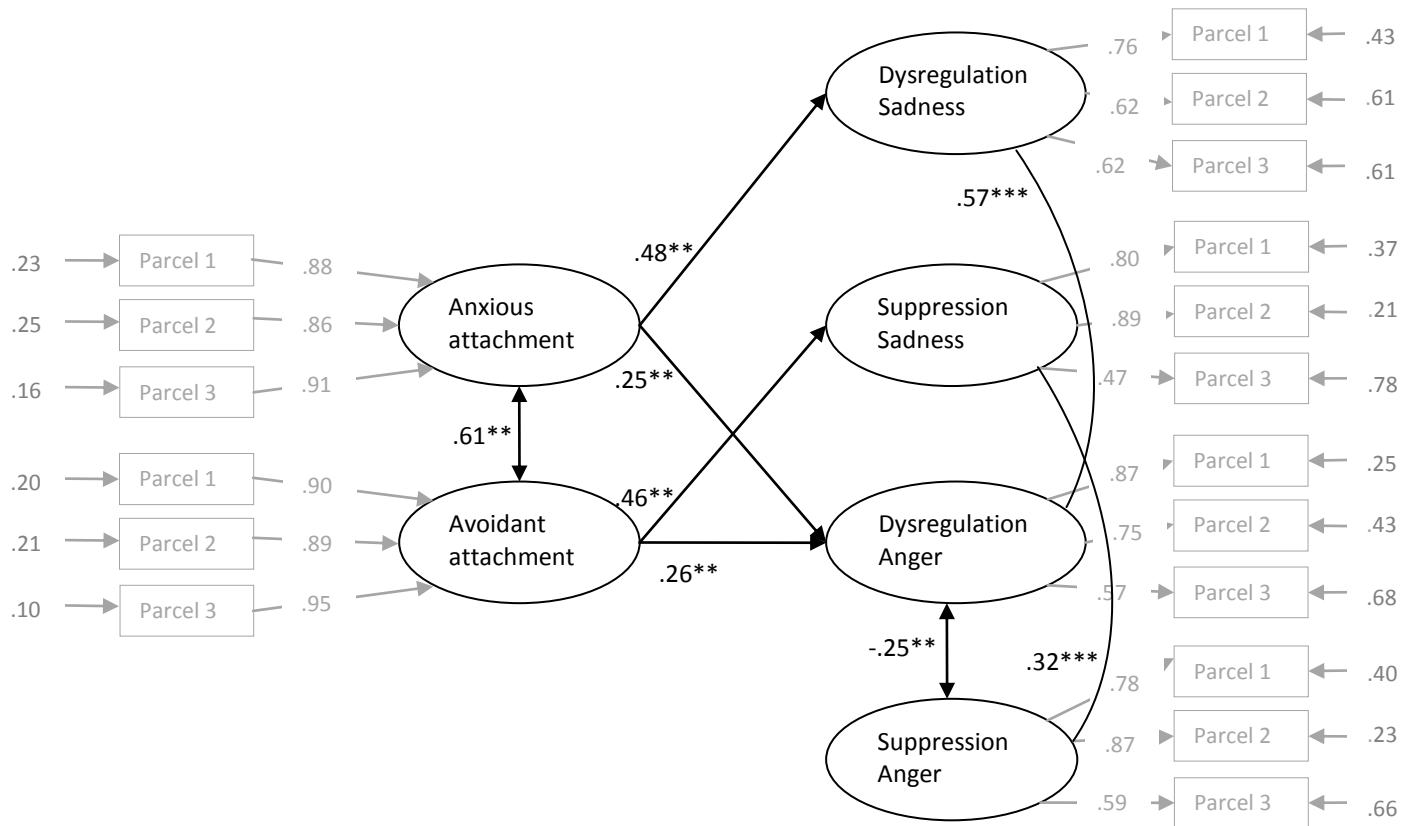


Figure 1. Structural model of the link between attachment representations and emotion regulation strategies (Study 1). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . For the purpose of figure clarity, only significant paths are represented in the model.

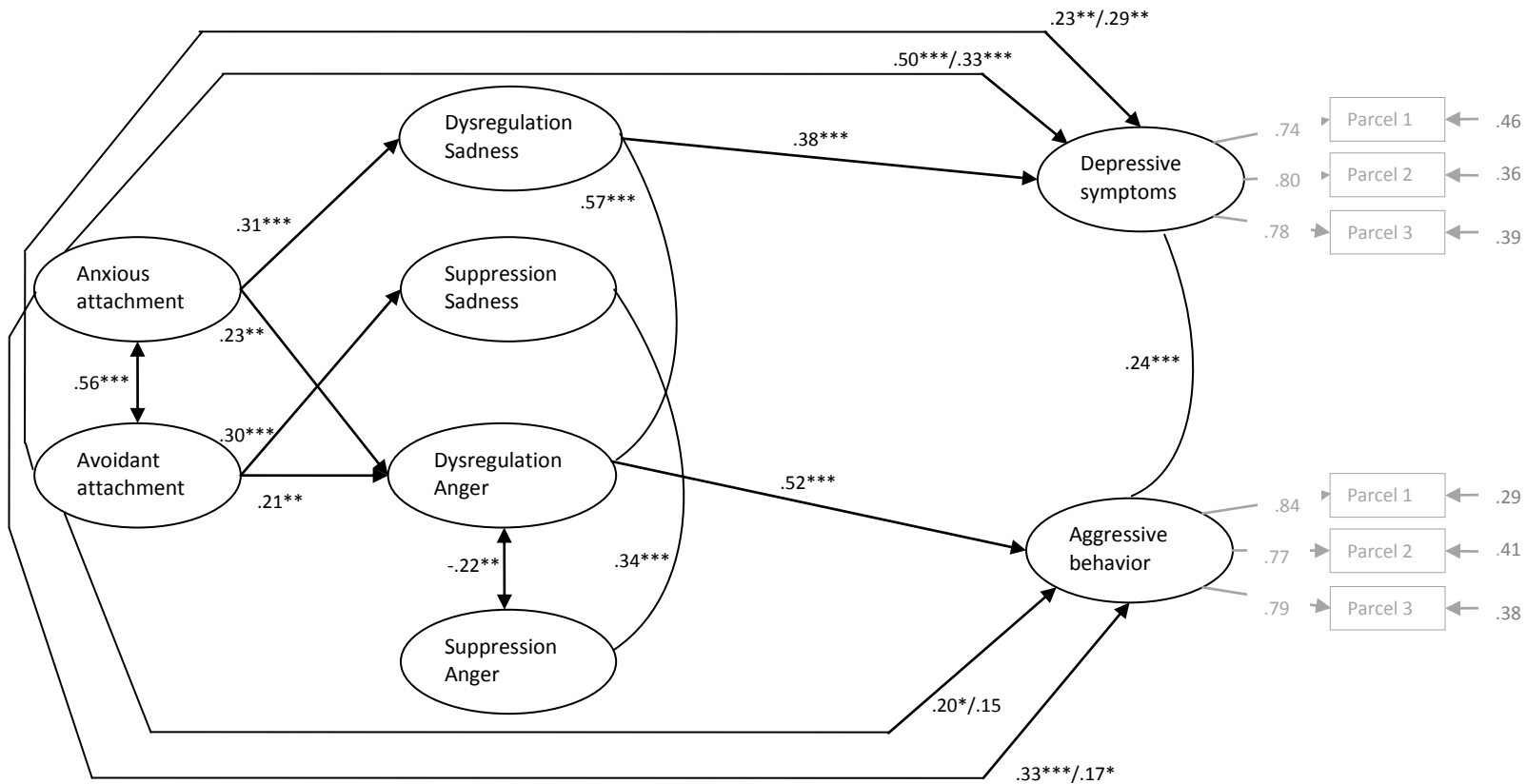


Figure 2. Structural model of the link between the emotion regulation model of attachment and adolescents' internalizing and externalizing symptoms (Study 2). Coefficients shown are standardized path coefficients, \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . For the purpose of figure clarity, only significant paths are represented in the model.

# Chapter 8

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## General Discussion

This chapter discusses the main findings of the different empirical studies and situates them within an integrated model (see Figure 1). Furthermore, methodological strengths, limitations and clinical implications are addressed. Finally, several promising future research directions are outlined.

### **An overview of the research findings**

The general purpose of the present doctoral dissertation was to expand the knowledge on associations between attachment representations and depressive symptoms in children and adolescents. Based on the relative lack of instruments directly tapping into attachment anxiety and avoidance in middle childhood and early adolescence (Kerns, Tomich, Aspelmeier, & Contreras, 2000; Thompson & Raikes, 2003), it was the aim of **Chapter 2** to develop and validate a child version of the Experiences in Close Relationships Scale-Revised (referred to as the ECR-RC), a self-report questionnaire measuring attachment anxiety and avoidance. The results of two separate studies showed a clear two-factor structure and adequate reliability of the ECR-RC. In terms of construct validity, results showed meaningful relationships with other attachment measures. For instance, the ECR-RC attachment anxiety dimension showed a unique association with the preoccupied scale from the Preoccupied and Avoidance Coping Questionnaire (PACQ), whereas the ECR-RC avoidant dimension was uniquely related to the PACQ avoidance scale. In terms of predictive validity, independent associations with depressive symptoms and unique associations with two theoretically relevant emotion regulation strategies were found, that is, emotional suppression and emotional dysregulation. In sum, the results provide evidence for the usefulness of the ECR-RC to measure the two attachment dimensions in middle childhood and early adolescence. As such, all subsequent studies used the ECR-RC as a measure to capture children's and adolescents' attachment representations. Table 1 provides an overview of the ECR-RC descriptives for **chapter 2 to 7**. The findings of **chapters 3 to 7** center around two overarching research aims that will be discussed in turn.

*Aim 1: The role of psychosocial processes in the development and intergenerational similarity of depressive symptoms*

As a first research aim, we investigated the assumption that the development and intergenerational similarity in depressive symptoms can be explained by several psychosocial processes. For this purpose, we cross-sectionally investigated the role of depressogenic personality, attachment and parenting in the link between parents' and children's internalizing symptoms (**Chapter 3 and 4**), and we longitudinally examined associations between depressogenic personality, attachment and depressive symptoms in children and adolescents (**Chapter 5**).

**Chapter 3** aimed to test the role of depressogenic personality (i.e., sociotropy and autonomy) and attachment (i.e., anxiety and avoidance) in the intergenerational similarity of depressive symptoms. The participants in this study were 303 early adolescents and their mothers. The children and parents completed an analogous set of questionnaires on depressogenic personality, attachment, and depressive symptoms. The results show a small but significant association between mothers' and children's depressive symptoms. The findings also support intergenerational similarity in both sets of vulnerabilities (i.e., dimensions of depressogenic personality and insecure attachment). Moreover, the intergenerational similarity of both vulnerability factors was found to account for the association between mothers' and children's depressive symptoms. Within each generation there were also meaningful associations between dimensions of depressogenic personality and dimensions of attachment, with sociotropy being related to anxiety and with autonomy being related to both anxiety and avoidance.

**Chapter 4** aimed to build on the finding that attachment explains at least partly the intergenerational similarity of depressive symptoms by additionally examining the role of parenting. Specifically, we addressed the role

of two dimensions of parenting (i.e., responsiveness and autonomy-support) and attachment (i.e., anxiety and avoidance) in the intergenerational similarity of depressive symptoms. The inclusion of both parenting dimensions (i.e., responsiveness and autonomy-support) is important as the majority of previous research merely focused on responsiveness. A two-sample design was employed so that a clinical group of children was compared with a non-clinical group. All participants and their mothers reported on depressive symptoms, parenting and all children administered a child attachment questionnaire. Again, the results show a significant association between mothers' and children's depressive symptoms. Further, the findings support the notion that both parenting and child attachment could account for the intergenerational congruence of depressive symptoms. There were also meaningful and specific associations between dimensions of parenting and dimensions of attachment, with responsiveness being primarily related to attachment avoidance and with autonomy-support being primarily related to attachment anxiety. In sum, maternal depressive symptoms seem to be associated with maladaptive parenting strategies. Inadequate maternal parenting was in turn related to adolescents' insecure attachment representations which, in turn, showed a relationship with adolescent internalizing symptoms.

A third study on this first research goal (**Chapter 6**) aims to replicate the associations between perceived parenting (i.e., responsiveness and autonomy-support) and children's and adolescents attachment representations. Although **Chapter 6** mainly describes study findings that contribute to our second research aim, a sidelong goal was to replicate the study findings on the parenting-attachment link. It was found that parental responsiveness and autonomy-support are differentially related to attachment anxiety and avoidance, with low perceived parental responsiveness being primarily related to attachment avoidance and with perceived parental



inhibition of autonomy being related to both anxious and avoidant attachment representations.

A limitation of previous studies is the cross-sectional design. Therefore, an additional study on this first central research aim (**Chapter 5**) examines longitudinal associations between adolescents' depressogenic personality (i.e., sociotropy and autonomy), attachment (i.e., anxiety and avoidance) and depressive symptoms. Employing a cohort-sequential design, a sample of 289 students was investigated three times, each time with a one year interval. Latent growth curve modeling (LGC) revealed that adolescents' depressogenic personality dimensions are highly stable from an intra-individual perspective, while dimensions of attachment show a significant rate of change during adolescence. Further, initial levels of depressogenic personality characteristics, and autonomy more specifically, were associated with increases in attachment (both anxiety and avoidance) and depressive symptoms. In addition, results suggested that the association between initial levels of autonomy and increases in depressive symptoms was mediated by increases in attachment anxiety and avoidance. In sum, the results suggest a mediating role for attachment in the relationship between an autonomous personality orientation and the development of depressive symptoms.

*Aim 2: Emotion regulation as a mediator in the relationship between attachment and depressive symptoms in children and adolescents*

After demonstrating the role of attachment in the development and intergenerational similarity of internalizing symptoms, we investigated through which mechanism attachment representations would relate to depressive symptoms. To better understand this association, we followed well-validated emotion regulation models in adult (Shaver & Mikulincer, 2002) and infant (Cassidy, 1994) attachment research. These models propose that there is heightening of emotion (i.e., dysregulation) in people with anxious attachment

representations and minimization of emotion (i.e., suppression) in people with avoidant attachment representations.

In advance, **Chapter 2** aimed to examine the validity of the ECR-RC by investigating specific relationships between attachment anxiety and avoidance on the one hand and emotional dysregulation and suppression on the other hand. The results of this study are in line with the theoretical assumptions based on the model of Shaver and Mikulincer (2002) and the model of Cassidy (1994). More specifically, ECR-RC anxiety showed a unique positive association with emotional dysregulation, while ECR-RC avoidance showed a unique positive association with emotional suppression. In **Chapter 6 and 7**, the validity of this emotion regulation model of attachment is investigated more thoroughly, applying the model to the development of depressive symptoms in children and adolescents.

In **Chapter 6**, the validity of the emotion regulation model of attachment is tested by two separate studies in middle childhood children and early adolescents. Both studies examined depressive symptoms as an outcome variable. Participating children and early adolescents (8-14 years of age) completed a set of questionnaires on attachment (ECR-RC), internalizing problems and emotion regulation. In both Study 1 and Study 2, evidence was found for the hypothesized specific associations between attachment anxiety and avoidance and emotion regulation strategies (dysregulation and suppression, respectively). Mixed evidence was found for the mediating role of emotion regulation in associations between attachment and depressive symptoms. Emotion regulation strategies to regulate general negative emotions (study 1) were not significantly related to depressive symptoms, whereas emotion regulation strategies measured with specific reference to the regulation of sad emotions (study 2) did mediate the direct relations between attachment and depressive symptoms. This finding is in line with the idea that

processes of emotion regulation may differ depending on the type of emotion involved (Feng et al., 2009).

A second chapter on this second main research aim (**chapter 7**) applies the emotion regulation model of attachment to the regulation of two specific emotions, that is, sadness and anger. Moreover, the study investigates how attachment and accompanying emotion regulation strategies relate to both internalizing (depressive symptoms) and externalizing problems (aggressive behavior) in early adolescents. Again, two separate cross-sectional studies supported significant associations between attachment representations (i.e., anxiety and avoidance) and emotion regulation strategies (i.e., dysregulation and suppression). However, specific associations were partly depending on the type of emotions involved. Attachment avoidance was associated with both sadness suppression and anger dysregulation, whereas attachment anxiety related to dysregulation irrespective of the type of emotions. Further, Study 2 found that attachment anxiety and avoidance are associated with internalizing and externalizing problems via dysregulation of sadness and anger, respectively.

#### *Convergent findings across chapters*

Across the different empirical studies, several main findings emerged repeatedly. First, the intergenerational similarity hypothesis for depressive symptoms (e.g., Goodman & Gotlib, 1999) found support in both **Chapter 3 and 4**. Nonetheless, the size of this association in **Chapter 4** ( $\beta = .26, p < .001$ ) was somewhat higher than the effect size obtained in **Chapter 3** ( $\beta = .17, p < .05$ ). This could possibly be explained by the reliance on a multi-informant assessment of adolescents' internalizing symptoms in **Chapter 4**. This approach is thought to control for reporter bias and to result in a more accurate and valid estimation of internalizing symptoms (e.g., Kendall, Cantwell, & Kazdin, 1989). Another possible reason why we obtained a somewhat larger coefficient

for intergenerational similarity in **Chapter 4** than in **Chapter 3** could be the inclusion of both referred and non-referred participants in the former chapter. As such, the study's sample of **Chapter 4** resulted in a broad sample that covers the whole spectrum from low to severe internalizing symptoms, which could have strengthened the intergenerational similarity effect size.

Next, all studies (**Chapter 2 to 7**) confirmed the hypothesis that attachment representations play an important role in the development and intergenerational similarity of depressive symptoms. In line with previous research findings (Muris, Meesters, van Melick, & Zwambag, 2001), insecure attachment representations show significant associations with depressive symptoms in children and early adolescents (**Chapter 2, 5, 6 and 7**), and attachment could also account at least partially for the intergenerational congruence of depressive symptoms (**Chapter 3 and 4**).

Further, the emotion regulation model of attachment (Shaver & Mikulincer, 2002; Cassidy, 1994) found support in five separate samples (**Chapter 2, 6 and 7**). Although all studies provided support for this model, different results occurred depending on the type of emotion involved. With regard to the regulation of overall negative emotions and sad emotions, the results supported distinct associations between attachment anxiety and avoidance and emotional dysregulation and suppression, respectively (conform Shaver & Mikulincer, 2002 and Cassidy, 1994). However, when respondents were asked about their strategies to regulate anger emotions, results showed that both attachment anxiety and avoidance are related to anger dysregulation. Further research should try to replicate the latter findings and should try to clarify the meaning and nature of dysregulation. Mikulincer and Shaver (2007) seem to present dysregulation or hyperactivation as a rather active and motivated strategy. As such, anger dysregulation could be used to keep others at a distant. However, dysregulation could also be understood as a

relatively more passive and uncontrollable reaction to stress (see Block, 2002). The measure used in this study does not clearly differentiate between these two conceptualizations of hyperactivation or dysregulation. Future research could include assessments of both types of dysregulation and could examine whether attachment anxiety is primarily related to uncontrolled dysregulation whereas attachment avoidance is principally related to motivated anger hyperactivation.

A last notable convergent finding concerns the absence of gender differences when it comes to the associations between depressogenic personality, attachment, parenting, emotion regulation and internalizing symptoms. Across different empirical studies, no significant differences were found between the models for boys and the models for girls. Several multigroup analyses, some of which are presented in the preceding chapters, resulted in non-significant differences. The absence of significant gender differences is in line with the idea that attachment needs and related processes are fundamental and applicable across gender (Baumeister & Leary, 1995). Baumeister and Leary (1995) found abundant evidence of a basic desire to form social attachments and found ample research that the need to belong shapes emotion and cognition. In contrast, mean differences on the study variables did repeatedly occur between boys and girls. For example, girls generally reported more internalizing symptoms, and scored higher on attachment anxiety and dysregulation than boys. Boys, on the other hand, reported higher scores on attachment avoidance and suppression than girls. These findings are in line with previous attachment, emotion regulation and depression research (e.g., Nolenhoeksema & Girgus, 1994).

#### *Divergent findings across chapters*

Next to the convergent findings, divergent outcomes also appeared between different empirical studies. When examining associations between

depressogenic personality and attachment, two different divergent findings emerged. First, the direction of effects between children's depressogenic personality dimensions and dimensions of attachment was different across studies. **Chapter 3** modelled mother-child attachment representations before children's and adolescents' depressogenic personality dimensions. This decision for direction of effects between depressogenic personality and attachment was made here on a conceptual basis. In line with the work of Mikulincer and Shaver (2003), we reasoned that, in children, maternal attachment representations are better represented as developmental antecedents of children's and adolescents' depressogenic personality rather than as consequences thereof. Interactions with the primary caregivers (parents) would act as the basis for interpersonal behavior and expectations in further attachment relationships that in turn shape children's personality (e.g., Blatt & Homann, 1992; Thompson & Zuroff, 1999). In contrast, **Chapter 5** found adolescents' depressogenic personality in advance to mother-child attachment representations. Regarding direction of effects, the results of **Chapter 5** seem more trustworthy than the results of **Chapter 3**, as the former and latter chapter present a longitudinal and cross-sectional study, respectively. One mechanism that may explain how and why personality features might bring about changes in attachment style is the process of stress generation. Consistent with the principle of stress generation, individuals high on autonomy have been found to actively contribute to the occurrence of negative life events and more specifically, to negative interpersonal experiences. For example, autonomous individuals often strive for extremely high personal standards at the expense of gratifying interpersonal relationships. Individuals high on autonomy/self-criticism tend to engage in aloof or even hostile interpersonal styles (e.g., Habke & Flynn, 2002; Mongrain, 1998). It seems likely that people in the environment of highly autonomous

individuals will respond to such an interpersonal style with negative interpersonal behavior such as hostility and intrusiveness. When such negative interpersonal events accumulate, this may result in a further increase and strengthening of autonomous' individuals insecure attachment representations. In sum, personality vulnerability and associated stress factors might make them more directly vulnerable to insecure attachment and subsequent depression than individuals low on depressogenic personality (Priel & Shahar, 2000). Although present results support previous hypotheses, it should be noted that this study (**Chapter 5**) is among the first to examine longitudinal associations between depressogenic personality and attachment and that no definite conclusions about directions of effects can be drawn. An important question for further research, for example, is whether children's age might influence the direction of effects between depressogenic personality and attachment. For instance, when personality orientations are crystallized during middle childhood or adolescence, personality might affect attachment and interpersonal style. However, at a young age, quality of parenting and subsequent attachment representations may influence children's developing personality characteristics rather than the other way around.

A second divergent finding regarding depressogenic personality and attachment emerged in the specific associations between personality orientations and dimensions of attachment. When studied cross-sectionally (**Chapter 3**), sociotropy was uniquely related to attachment anxiety, whereas autonomy was related to both attachment anxiety and avoidance. In a longitudinal study (**Chapter 5**), autonomy was again significantly related to both attachment anxiety and avoidance, yet sociotropy did not show significant longitudinal associations with neither of the attachment dimensions. One possible explanation for this finding is that self-critical dynamics (conceptually related to autonomy) gain great importance during

adolescence, a life-period which is typically characterized by achievement oriented goals (e.g., school grades) (e.g., Blatt & Luyten, 2009). Sociotropy on the other hand may be of greater importance during childhood (parent-child relationship) and adulthood (partner relationship). Dependant on the developmental period and associated central developmental tasks (e.g., academic achievement), longitudinal research may show different longitudinal associations between depressogenic personality and attachment.

As a final divergent finding, two empirical studies on parenting show divergent results regarding the relationship between different parenting behaviors (i.e., responsiveness and autonomy-support) and attachment representations (i.e., anxiety and avoidance). More specifically, **Chapter 4** found that low parental responsiveness would uniquely relate to attachment avoidance in children, whereas low parental autonomy-support would uniquely relate to attachment anxiety. In contrast, these relationships were less clearly differentiated in **Chapter 6**. Parental responsiveness and autonomy-support were associated to both children's avoidant as well as anxious attachment representations. The uniqueness of associations in **Chapter 4** could possibly be explained by the reliance on a multi-informant assessment of parenting, which results in a more accurate and valid estimation (e.g., Kendall et al., 1989). Nonetheless, although the crosspaths were significant in **Chapter 6**, autonomy-support and responsiveness were still primarily related to attachment anxiety and avoidance respectively.

### **Methodological strengths and limitations of the present research**

The strengths and limitations of the different empirical studies were already thoroughly addressed in the discussion section of each specific study. In the following paragraphs, a concise overview of the most important shortcomings and strengths of the present research is provided.



A first shortcoming of the present research is that we predominantly relied on self-report measures of our key constructs. This may have invoked problems with response bias, and observed relations between variables may have been overestimated due to shared method variance (Kovan, Chung, & Sroufe, 2009). Although one study (**Chapter 4**) used a multi-informant approach (i.e., information from both adolescents and parent), it would be worthwhile to examine all research questions using data from other important sources (e.g., teacher reports) or other methods (e.g., observational measures, interview-based measures, experiments).

A second limitation regards the generalization of the present research' results to other populations because the current samples generally consisted of well-adjusted Dutch speaking Caucasian children. Further research is needed to explore this issue in ethnically or racially diverse populations. However, based on the idea that attachment processes are communal and fundamental (Baumeister & Leary, 1995), no significant differences are expected.

Another limitation is the cross-sectional design of several studies (with the exception of **Chapter 5**). A cross-sectional design only provides information to draw conclusions regarding associations between variables, whereas a longitudinal design would have made it possible to draw conclusions regarding the temporal direction of certain effects. Future research, especially when investigating the intergenerational similarity hypothesis, should use a prospective, longitudinal research design (Kovan et al., 2009).

In spite of the limitations mentioned above, these studies can be considered as a valuable contribution to attachment research due to several strengths. Similar hypotheses (see research aim 1 and 2) were tested in several studies (study 1 to 9) with good study sample sizes ( $N = 197-746$ ) using robust methodological designs and different statistical applications. Moreover, this dissertation includes a longitudinal study (see **Chapter 5**, 3-wave cohort

sequential design), which is considered a very valuable approach in the developmental psychopathology research domain.

Further, it can be considered a strength of the present research that we used well-validated and frequently used measurements to assess depressogenic personality, attachment, parenting, emotion regulation and psychopathology throughout the different empirical studies. The key variable in this dissertation, attachment, was assessed with the use of the Experiences in Close Relationships Scale-Revised (ECR-R). For the purpose of the present dissertation, a child version of this questionnaire (ECR-RC) was developed and well-validated (see **Chapter 2**).

Finally, it can be considered a strength that we recruited both referred and non-referred samples. In this way, we were able to weigh the results that were obtained in the general population against those obtained in a more heterogeneous sample with both referred and non-referred participants (**Chapter 4**). No significant differences emerged in the model for clinical versus non-clinical participants.

### **Clinical implications**

This research provides several opportunities for improvement in clinical practice, affecting both diagnostic and treatment applications. First of all, regarding assessment, the present project developed a child version of a well-validated and frequently used measurement to capture attachment representations in adults and adolescents (i.e., the Experiences in Close Relationships Scale-Revised). The ECR-RC seems to be a promising instrument to measure attachment anxiety and avoidance in middle childhood and early adolescence. Identifying children and early adolescents with vulnerable attachment representations (i.e., screening) is essential for more effective prevention and intervention actions. However, large scale future research

should be conducted to gather norm scores on each subscale, specified for age, gender, family status and attachment figure.

Second, the identification of particular risk factors in children's and adolescents' depressive symptoms may yield clues about the etiology of internalizing problems and is essential for more effective prevention and intervention actions. In terms of clinical implications, our findings may suggest that depressogenic personality, attachment patterns, parenting behaviors and emotion regulation strategies are good targets for therapeutic intervention of depression. This would be especially true for adolescents with depressed parents as **chapter 3 and 4** show that parental depressive symptoms may be associated with children's internalizing problems. With regard to attachment, the reestablishment of secure attachment patterns between parent and child may be a fruitful approach to prevent and treat internalizing problems in children and adolescents. Our findings suggest that attachment representations, as they seem to be more susceptible to change, are a better target for therapeutic intervention (e.g., attachment-based family therapy by Diamond, Diamond & Hogue, 2007) than for example depressogenic personality, which is more stable and possibly more resistant to change. Nonetheless, one may wonder about the long-term efficiency of targeting only adolescents' attachment representations. Given that depressogenic personality seems to drive increases in insecure attachment representations, improvements in the quality of attachment representations may be short-lived as long as adolescents' personality vulnerability to depression is not fundamentally changed. More specifically, an important goal in treatment regarding depressogenic personality could be to learn adolescents to decrease maladaptive cognitions centered on autonomy-related themes like failure.

Based on the present findings, parenting also seems to be an important factor that could affect the risk for depressive symptoms directly, or indirectly

via attachment. Although numerous parenting programs target the role of involvement, warmth, and responsiveness, the role of autonomy-support is not explicitly addressed. In contrast, the present research points to the importance of both responsiveness and autonomy-support for the development of depressive symptoms in children and adolescents.

Further, our findings may suggest that emotion regulation strategies are a good yet not the only target for therapeutic intervention. Nowadays, the role of emotion regulation processes is well-recognized in several well investigated intervention programs (e.g., Emotion-focused Therapy by Greenberg, 2004). However, the current research seems to suggest that attachment, depressogenic personality, parenting behaviors and emotion regulation strategies are equally important targets for adequate prevention and intervention, as improvements in the quality of emotion regulation strategies may be short-lived when antecedents are not fundamentally changed. Given the present project results, it seems important to evaluate whether an intervention targeting several factors (e.g., both attachment and emotion regulation) would be more effective than an intervention targeting only one of these factors.

### **Suggestions for future research**

Some recommendations for future research were already addressed supplementary to the shortcomings of the present research. In the following section, some additional guidelines for future research are provided.

First of all, an important question for further research is whether fathers might also contribute to the intergenerational similarity of depressive symptoms. According to Connell and Goodman (2002), it is no longer justifiable to exclude fathers from the research programs as the presence of psychopathology in both mothers and fathers is related to children's internalizing symptoms. Moreover, during adolescence, attachment

relationships are not limited to parent-child relationships. The interpersonal world of adolescents often witnesses a shift from parents to peers or romantic partners (Allen, 2008). As such, future research should try to replicate the present study's findings using a general attachment measurement or using measures of attachment in other specific relationships.

A second direction for future research is to include a measure of stress to investigate the present study's research questions. For example, some empirical evidence indeed suggests that depressogenic vulnerability is only or mainly related to depression under conditions of negative life events (i.e., diathesis-stress perspective; Clark, Beck, & Alford, 1999), whereas other research showed that depressogenic vulnerability per se might make individuals more directly vulnerable to stress and subsequent depression (stress generation perspective, Hammen, 1991). Future research could, for example, investigate interactions between depressogenic personality, attachment and depression when individuals are confronted with stressful transitions in the family life cycle (e.g., young adult parents bringing their child to day-care for the first time). Associations between depressogenic personality, attachment representations and depressive symptoms could be studied when encountering such stress-inducing transitions in real life (i.e., using a correlational design) as well as using an experimental exposure to corresponding events of relatedness frustration.

Next, the current research did not investigate disorganized attachment, which may be the insecure attachment pattern most consistently linked to childhood psychopathology (e.g., Green & Goldwyn, 2002). Despite the relative lack of validated assessments of disorganization for middle childhood and early teen years, future research may investigate (a) the relative contribution of attachment anxiety and avoidance and disorganized attachment to the prediction of adolescent psychopathology and (b) the

potential mediating role of specific emotion regulation strategies in associations between attachment disorganization and depressive symptoms.

Finally, it may be particularly worthwhile to additionally study relatively more adaptive attachment representations and related emotion regulation strategies. Although maladaptive emotion regulation strategies may explain how and why attachment experiences relate to psychopathology, adaptive emotion regulation strategies may better explain how attachment relates to positive adjustment (e.g., life satisfaction, vitality, and self-actualization). For example, secure attachment representations may be related to more adaptive emotion regulation strategies such as emotional integration (Ryan, Deci, Grolnick, & LaGuardia, 2006), which refers to an open attitude towards emotions and a deliberate, thorough exploration of inner experiences. Emotional integration is hypothesized to develop within a responsive and autonomy-supportive family climate and to subsequently increase well-being and adaptive behavior (Roth, Assor, Niemiec, Ryan, & Deci, 2009; Ryan et al., 2006).

### **Conclusion**

As graphically displayed in Figure 1, the current research found support for the role of depressogenic personality, attachment and parenting in the intergenerational similarity of depressive symptoms. More specifically, parental sociotropic and autonomous personality characteristics, which are related to parental depressive symptoms, seem to translate into maternal anxious and avoidant attachment representations of the relationship with the partner. In turn, mothers' anxious and avoidant attachment representations are theoretically expected to be associated to less autonomous and less responsive parenting behaviors, respectively. Although the present research did not directly investigate this issue, results showed significant associations between maternal depressive symptoms and both maladaptive parenting

behaviors. In turn, mothers' autonomy-inhibiting and unresponsive parenting was found to be associated with children's attachment anxiety and avoidance respectively, which are associated with children's sociotropic and autonomous personality characteristics and increased prevalence of depressive symptoms.

Further, the current research yielded support for the emotion regulation model of attachment, and for its association with children's and adolescents' depressive symptoms. However, specific associations seem to depend on the type of emotion involved. Anxious and avoidant attachment representations show relatively specific associations with sadness dysregulation and suppression respectively, whereas both attachment dimensions were equivalently related to anger dysregulation. These maladaptive emotion regulation strategies were, in turn, found to account at least partially for associations between attachment and both internalizing (i.e., depressive symptoms) and externalizing psychopathology (i.e., aggressive symptoms).

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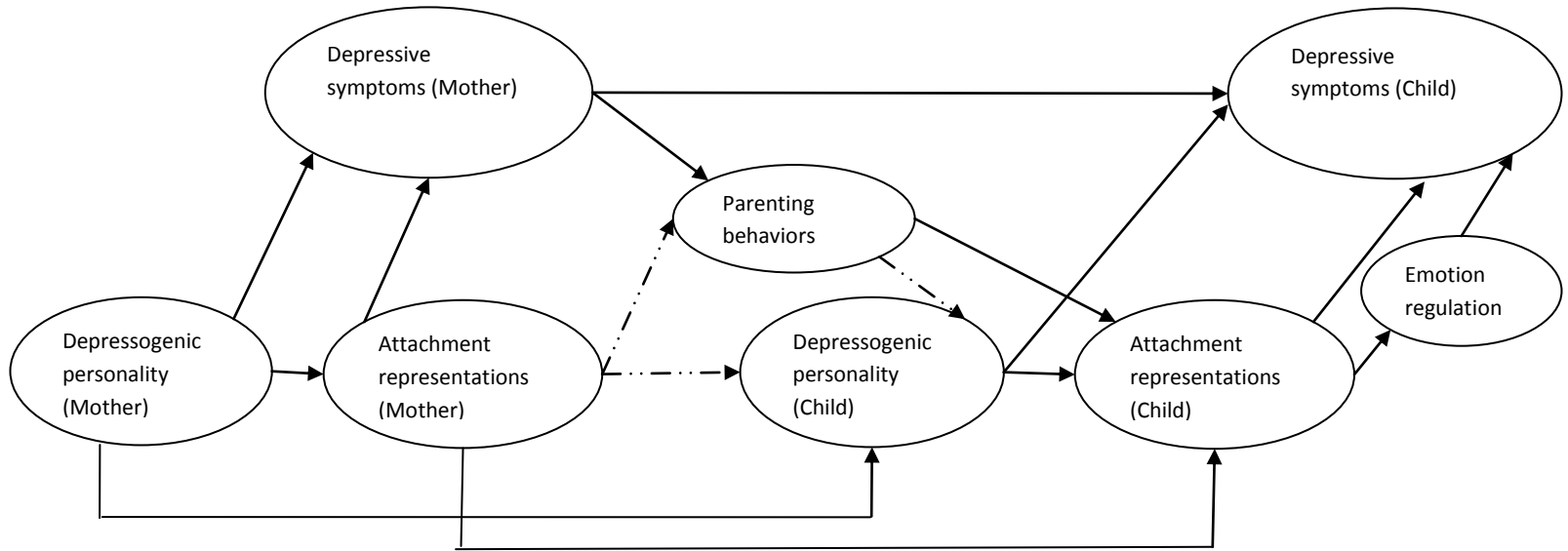
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Table 1

*Overview of the Experiences in Close Relationships Scale-Revised Child Version (ECR-RC) descriptives*

Chapter	Studies and participants	Mean age (Range)		Mean score		Standard Deviation		Cronbach's alpha	
				Anx	Avoid	Anx	Avoid	Anx	Avoid
2	Study 1 = 514	12.64	(10-14)	2.20 (M)	2.81 (M)	0.96 (M)	1.16 (M)	.89 (M)	.93 (M)
				2.25 (F)	3.07 (F)	1.06 (F)	1.34 (F)	.92 (F)	.94 (F)
	Study 2 = 296	10.66	(8-13)	2.34 (M)	2.66 (M)	0.89 (M)	0.97 (M)	.83 (M)	.85 (M)
3	Study 3 = 303	12.00	(8-14)	2.04 (M)	2.80 (M)	0.76 (M)	1.00 (M)	.85 (M)	.90 (M)
4	Study 4 = 238								
	Clinical = 99	14.28	(10-18)	2.61 (M)	3.42 (M)	1.11 (M)	1.37 (M)	.90 (M)	.94 (M)
	Control = 139	14.59	(11-20)	2.37 (M)	3.24 (M)	1.00 (M)	1.17 (M)	.89 (M)	.93 (M)
5	Study 5 = 289	12.51	(12-14)	2.21 (M)	2.87 (M)	0.99 (M)	1.13 (M)	.87-.94 (M)	.92-.94 (M)
6	Study 6 = 339	12.60	(12-14)	2.52 (M)	3.09 (M)	0.92 (M)	1.02 (M)	.86 (M)	.83 (M)
	Study 7 = 746	12.00	(8-14)	2.00 (M)	2.47 (M)	0.85 (M)	1.09 (M)	.87 (M)	.92 (M)
				2.04 (F)	2.82 (F)	0.89 (F)	1.19 (F)	.88 (F)	.92 (F)
7	Study 8 = 197	13.54	(11-16)	2.16 (M)	3.14 (M)	0.98 (M)	1.21 (M)	.91 (M)	.93 (M)
	Study 9 = 310	14.26	(11-18)	2.41 (M)	3.24 (M)	1.05 (M)	1.27 (M)	.91 (M)	.93 (M)

Note. (M) = Child report on mother-child attachment; (F)= Child report on father-child attachment



*Figure 1.* The role of attachment in understanding children’s and adolescents’ depressive symptoms: an examination of associations with depressogenic personality, parenting, and emotion regulation.

*Note.* The full lines represent investigated pathways, whereas the dotted lines represent conceptually relevant pathways for further research



# **Nederlandstalige samenvatting**

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## **De rol van hechting in depressieve symptomen bij kinderen en adolescenten: Een onderzoek naar het verband met depressogene persoonlijkheid, opvoeding en emotieregulatie**

Dit doctoraatsproefschrift is opgebouwd uit acht hoofdstukken. In een eerste hoofdstuk wordt de lezer geïntroduceerd in het theoretische kader waarop het huidig empirisch onderzoek is gebaseerd. Het empirisch onderzoek van het proefschrift bestaat uit twee centrale delen. Het eerste luik van de empirische studies (hoofdstuk 2, 3, 4 en 5) onderzoekt de rol van drie psychosociale processen die het risico op depressieve symptomen bij kinderen en adolescenten zou kunnen verhogen. Bijzondere aandacht gaat daarbij naar processen van hechting, depressogene persoonlijkheid en opvoeding. Het tweede onderzoeksluik (hoofdstuk 6 en 7) focust op twee centrale emotieregulatie strategieën waarvan verondersteld wordt dat ze de relatie tussen hechting en depressieve symptomen bij kinderen en adolescenten minstens gedeeltelijk zouden kunnen verklaren. De empirische bevindingen op basis van elk van deze studies wordt hierna samengevat weergegeven per hoofdstuk. In een laatste hoofdstuk worden de globale bevindingen van deze zes voorgaande hoofdstukken bediscussieerd en wordt hun waarde voor de klinische praktijk weergegeven.

## Hoofdstuk 1: Algemene inleiding

Het huidig doctoraatsproefschrift gaat uit van de veronderstelling dat hechtingsprocessen een belangrijke rol spelen in de psychologische ontwikkeling van mensen. Bowlby (1969/1982; 1979), als grondlegger van de hechtingstheorie, voorspelde dat de kwaliteit van de hechtingsrelatie tussen ouder en kind het risico op het later emotioneel functioneren van personen beïnvloedt. Het verband tussen hechtingsrepresentaties en depressieve symptomen vond veelvuldig bevestiging in empirisch onderzoek bij zowel kinderen (Brumariu & Kerns, 2010) als volwassenen (Mikulincer & Shaver, 2007). Ondanks deze duidelijke visie op de impact van hechtingsrelaties voor het later psychologisch functioneren, is het evenwel onduidelijk welke mechanismen een rol spelen bij het tot stand komen van dit verband. Het huidig doctoraatsproject gaat de rol van hechting onderzoeken in de ontwikkeling en intergenerationele samenhang van depressieve symptomen door meer specifiek op zoek te gaan naar het verband van deze relatie met depressogene persoonlijkheid, opvoeding en emotieregulatie. Twee grote onderzoeklijnen kunnen duidelijk worden onderscheiden: (a) het onderzoek naar psychosociale processen (nl., hechting, depressesogene persoonlijkheid en opvoeding) in de ontwikkeling en intergenerationele samenhang van depressieve symptomen, en (b) het onderzoek naar de rol van emotieregulatie in het verband tussen hechting en depressie.

### *Onderzoeksdoel 1: Psychosociale processen in de ontwikkeling en intergenerationele samenhang van depressieve symptomen*

Er is een overvloed aan empirische evidentie dat ouderlijke depressieve klachten samenhangen met soortgelijke symptomen bij kinderen (e.g., Connell & Goodman, 2002). Voorgaande studies baseerden zich echter zelden op een sterk theoretisch kader om dit verband te onderzoeken en



bleven eerder descriptief van aard (Hammen, Shih, & Brennan, 2004). Het huidige onderzoek daarentegen start van enkele recente theorieën over de rol van hechting, depressogene persoonlijkheid en opvoeding om de ontwikkeling en intergenerationele samenhang van depressieve symptomen bij kinderen te onderzoeken. In de hiernavolgende paragrafen worden hechtingsdimensies (angst en vermijding), depressogene persoonlijkheidsdimensies (sociotropie en autonomie) en opvoedingsgedragingen (responsiviteit en autonomie-ondersteuning) één voor één besproken gezien ze in dit doctoraat in verband worden gebracht met de ontwikkeling van depressieve symptomen.

Onveilige hechtingsrepresentaties worden gezien als risicofactor voor het ontwikkelen van depressieve symptomen (Bowlby, 1973, 1980). In hedendaags hechtingsonderzoek wordt een onderscheid gemaakt tussen twee centrale hechtingsdimensies, namelijk angstige en vermijdende hechting (Brennan, Clark, & Shaver, 1998). Hechtingsangst verwijst naar de angst om verlaten of afgewezen te worden. Personen die hoog scoren op deze hechtingsdimensie gaan constant zoeken naar sociale steun en vertonen vaak gevoelens van jaloezie. Hechtingsvermijding verwijst naar het vermijden van intimiteit en nauw contact met anderen. Personen die hoog scoren op deze hechtingsdimensie voelen ongemak bij nabijheid en zijn vaak op zichzelf aangewezen. Uit voorgaand onderzoek bij zowel kinderen (Brumariu & Kerns, 2010) als volwassenen (Mikulincer & Shaver, 2007) blijkt dat beide onveilige hechtingsrepresentaties een verband vertonen met depressieve klachten. Meer specifiek blijkt angstige hechting stelselmatig samen te hangen met depressieve symptomen, terwijl dit verband voor vermijdende hechting evenwel minder consistent is. Tot slot zouden beide hechtingsdimensies, net zoals depressieve symptomen, intergenerationele samenhang vertonen (Bakermans-Kranenburg & van Ijzendoorn, 1994-1995).

Ten tweede werden in de persoonlijkheid van personen vanuit verschillende theoretische kaders (bvb., Arieti & Bemporad, 1978; Beck, 1983; Blatt, 1974) kwetsbaarheidsfactoren voor depressie geïdentificeerd. Beck (1983), bijvoorbeeld, maakte een onderscheid tussen twee belangrijke persoonlijkheidsdimensies die het risico op depressie zouden verhogen, namelijk sociotropie en autonomie. Een persoon die hoog scoort op de sociotrope dimensie zou extreem sterk gericht zijn op sociale relaties. Zijn of haar gevoel van zelfwaarde zou volledig afhangen van het oordeel van de ander. Als gevolg zou die persoon zeer sensitief zijn voor afwijzing of voor het door de ander verlaten worden. Een sociotrope depressie zou vaak worden voorafgegaan door het wegvallen of afgewezen worden door een belangrijke andere. Anderzijds, zou een persoon die hoog scoort op de autonome dimensie overdreven gericht zijn op onafhankelijk functioneren. Een gevoel van voldoening zou bij deze personen worden bekomen door het zelfstandig bereiken van vooropgestelde doelen. Personen die hoog scoren op autonomie zijn assertief, en sensitief voor richtlijnen die anderen opleggen. Een autonome depressie zou vaak het gevolg zijn van de realisatie dat een bepaald vooropgesteld doel niet zelfstandig kan worden bereikt. Zowel theoretisch (bvb., Beck, 1983) als empirisch (bvb., Beck, Robbins, Taylor, & Baker, 2001) is er sprake van een sterke link tussen depressieve symptomen en zowel sociotropie als autonomie. Daarenboven zouden depressogene persoonlijkheidsfactoren, net zoals depressieve symptomen (Goodman & Gotlib, 1999) en hechtingsdimensies (Bakermans-Kranenburg & van Ijzendoorn, 1994-1995), intergenerationele samenhang vertonen (Besser & Priel, 2005).

Samengevat kunnen we stellen, op basis van theorie en voorgaand onderzoek, dat er verwacht wordt dat (a) depressieve symptomen een verband vertonen met zowel hechtingsrepresentaties als depressogene

persoonlijkheidsdimensies, en (b) depressieve symptomen, hechtingrepresentaties en depressieve persoonlijkheidsdimensies intergenerationele samenhang vertonen. Op basis van deze bevindingen stellen we ons de vraag hoe deze processen zich tegenover elkaar verhouden en meer specifiek of de intergenerationele samenhang van depressieve symptomen minstens gedeeltelijk zou kunnen worden verklaard door de intergenerationele samenhang van psychosociale kwetsbaarheidsfactoren (nl. depressogene persoonlijkheid en hechting). Daarenboven verwachten we ook specifieke verbanden tussen depressogene persoonlijkheidsfactoren en hechtingsrepresentaties binnen zowel de ouder- als de kindgeneratie. Deze specifieke verbanden worden meer in detail besproken in de volgende paragraaf.

Op conceptueel niveau wordt een verband verwacht tussen hechtingsangst en sociotropie enerzijds en tussen hechtingsvermijding en autonomie anderzijds. Angstige hechtingspatronen zouden zich ontwikkelen tijdens de kindertijd als reactie op inconsistente zorg van de ouders. Om met deze onvoorspelbaarheid om te gaan, zou het kind gaan streven naar constante alertheid voor aanwezigheid en aandacht van de andere. Angstige hechting wordt omschreven als een hoge angst om de liefde van de ander te verliezen gekoppeld aan een hoge nood aan aandacht van anderen (Bowlby, 1980). Dit angstige hechtingspatroon is parallel aan de sociotropie beschrijving van Beck (1983) waarbij de sterke gerichtheid op sociale relaties centraal staat. Vermijdende hechtingspatronen zouden zich ontwikkelen tijdens de kindertijd als reactie op verlies of inadequate zorg van de ouders. Om gevoelens van afwijzing te voorkomen, zou het kind gaan streven naar zelfstandigheid, later weinig waardering hebben voor interpersoonlijke relaties en zich eerder terugtrekken van anderen. Deze omschrijving is sterk gelijkend aan de autonome persoonlijkheid zoals die beschreven werd door Beck (1983).

Parallel aan deze conceptuele analyse, toont voorgaand empirisch onderzoek aan dat sociotropie en autonomie een significant verband vertonen met respectievelijk angstige en vermijdende hechting (Sibley, 2007). Daarenboven werd in onderzoek ook een verband gevonden tussen autonomie en angstige hechting. Dit verband zou kunnen verklaard worden door het gegeven dat personen die hoog scoren op autonomie zelfstandige doelen nastreven om goedkeuring van de ander te bekomen. Het conceptueel model dat we vooropstellen op basis van het literatuuroverzicht kan je vinden in Figuur 1.

Tot slot worden naast hechtingsrepresentaties en depressogene persoonlijkheidsdimensies ook opvoedingsgedragingen bestudeerd als tussenliggend mechanisme in de intergenerationele samenhang van depressieve symptomen. Op basis van de hechtingstheorie kan een belangrijke rol worden toebedeeld aan opvoeding in de ontwikkeling van hechtingsrepresentaties en daaropvolgende depressieve symptomen (Bowlby, 1980). Voor het ontwikkelen van een veilige hechtingsrelatie tussen ouder en kind moeten ouders hun kinderen beschermen en comfort bieden in tijden van stress (bieden van een veilige haven, Bowlby, 1988), maar moeten ze tevens autonome actie ondersteunen (bieden van een veilige basis voor exploratie, Ainsworth, 1969). Dit onderscheid tussen de veilige haven en de veilige basis is analoog aan het onderscheid tussen twee fundamentele opvoedingsdimensies die centraal staan in recent opvoedingsonderzoek, namelijk responsiviteit en autonomie-ondersteuning. Ouderlijke responsiviteit verwijst naar het vermogen van de ouders om te voldoen aan de noden van hun kinderen en als een veilige haven te fungeren wanneer het kind stress ervaart (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). Autonomie-ondersteunende ouders zijn ouders die het perspectief van hun kinderen proberen te kennen en te begrijpen. Deze ouders gebruiken zo weinig mogelijk controle om het gedrag

van hun kinderen te beïnvloeden en bieden keuzemogelijkheid waar mogelijk (Ryan, Deci, Grolnick, & LaGuardia, 2006). Hiertegenover staan psychologisch controlerende ouders die het gedrag van hun kinderen trachten te beïnvloeden door technieken zoals het induceren van schuld, schaamte of separatie-angst. Psychologisch controlerende technieken remmen de eigen individuele inbreng van kinderen af. Er wordt geen veilige basis geboden van waaruit het kind kan exploreren. Voorgaand empirisch onderzoek duidt op het belang van zowel responsiviteit als autonomie-ondersteuning in kinderlijke hechtingsrelaties (e.g., Whipple, Bernier, & Mageau, 2011). In het huidig onderzoeksproject wordt de rol van responsiviteit en autonomie-ondersteuning onderzocht in de ontwikkeling van hechting en daarmee samenhangende depressieve klachten.

*Onderzoeksdoel 2: De rol van emotieregulatie in het verband tussen  
hechting en depressieve symptomen*

Een tweede belangrijke veronderstelling in de hechtingstheorie die relevant is voor depressie onderzoek (Bowlby, 1969/1982, 1973) is dat hechtingsprocessen een belangrijke rol spelen in de ontwikkeling van emotieregulatie strategieën. Shaver en Mikulincer (2002) stellen een model voorop waarin het verband tussen hechtingsrepresentaties en emotieregulatie strategieën nauwkeurig wordt benaderd. Op basis van dit emotieregulatie model van hechting worden specifieke verbanden verwacht tussen angstige en vermijdende hechting enerzijds en respectievelijk disregulerende en suppressieve emotieregulatie strategieën anderzijds. Volgens Shaver en Mikulincer (2002) zouden personen met onveilige hechtingsrepresentaties hun hechtingsfiguren als onbeschikbaar zien. Afhankelijk van de evaluatie of het zoeken van de nabijheid van deze als onbeschikbaar geachte hechtingsfiguur een zinvolle optie zou zijn, zouden twee verschillende emotieregulatie strategieën geactiveerd worden. Angstig gehechte individuen zouden als gevolg van de inconsistente aanwezigheid van hun hechtingsfiguur toch kiezen

om nabijheid te zoeken. In plaats van tot rust te komen in de nabijheid van de hechtingsfiguur, zullen deze individuen echter wel steeds op hun hoede blijven voor mogelijk separatie of afwijzing. Ze gaan dan ook emotioneel hyperactiverende emotieregulatie strategieën hanteren om constante aanwezigheid van de hechtingsfiguur te verzekeren. Vermijdend gehechte individuen zouden kiezen om geen nabijheid te zoeken. De nood aan een hechtingsfiguur wordt ontkend en intimiteit en nabijheid vermeden. Dit zal leiden tot deactiverende emotieregulatie strategieën waarbij negatieve emoties worden onderdrukt (i.e., suppressie).

Disregulatie en suppressie zijn twee eerder maladaptieve emotieregulatie strategieën die de kans op het ontwikkelen van psychopathologie vergroten. Angstig gehechte individuen worden bij hyperactivatie namelijk door hun emoties overspoeld en vermijdend gehechte individuen kunnen door de emotionele suppressie hun onderliggende emotionele problemen niet oplossen (Mikulincer & Shaver, 2007). In het huidig doctoraatsproefschrift wordt de mediërende rol van emotieregulatie onderzocht in het verband tussen onveilige hechting en depressieve symptomen bij kinderen en adolescenten. Het laatgenoemde onderzoeksdoel komt hiernavolgend uitgebreid aan bod in Hoofdstuk 6 en 7. De hoofdstukken 3, 4 en 5 daarentegen onderzoeken enkele psychosociale processen in de ontwikkeling en intergenerationele samenhang van depressieve symptomen. Hoofdstuk 2, tot slot, is een voorbereidende studie waarbij een kindvriendelijke vragenlijst wordt ontworpen om angstige en vermijdende hechtingsrepresentaties in kaart te brengen.

## **Hoofdstuk 2: Angstige en vermijdende hechting in het midden van de kindertijd en vroeg adolescentie: De ontwikkeling van een kindversie van de “Experiences in Close Relationships Scale-Revised”**

De kwaliteit van hechtingsrelaties zou een belangrijke determinant zijn voor het psychosociaal functioneren van mensen (Green & Goldwyn, 2002; Greenberg, 1999). Hoewel hechting tijdens de hele levensloop van belang blijkt (Ainsworth, 1989; Bowlby, 1979) werd hechtingsonderzoek voornamelijk gevoerd tijdens de vroege kindertijd (bvb., Ainsworth, Blehar, Waters, & Wall, 1978) of de late adolescentie en volwassenheid (bvb., Rholes, Simpson, Campbell, & Grich, 2001), dit ten koste van het onderzoek in het midden van de kindertijd en vroeg adolescentie. Deze situatie is deels veroorzaakt door het relatief gebrek aan instrumenten die angstige en vermijdende hechting meten tijdens het midden van de kindertijd en vroeg adolescentie (Kerns, Tomich, Aspelmeier, & Contreras, 2000; Thompson & Raikes, 2003). Als bijkomend onderzoeksdoel stelde het huidig proefschrift voorop om de Experiences in Close Relationships Scale-Revised Child version (ECR-RC) te ontwikkelen. Dit is een kindvriendelijke versie van de Experiences in Close Relationships Scale-Revised (ECR-R), een frequent gebruikte zelfrapportage vragenlijst om angstige en vermijdende hechting te meten bij adolescenten en volwassenen.

In een eerste stap werd de factorstructuur van de ECR-RC onderzocht bij kinderen en adolescenten. Exploratorische en confirmatorische factoranalyse bij twee afzonderlijke steekproeven (Studie 1,  $N = 514$  en Studie 2,  $N = 296$ ) resulteerde telkens in een oplossing met twee factoren, die angstige en vermijdende hechting representeren. In een tweede stap resulteerde een onderzoek naar interne consistentie van de ECR-RC in sterke Chronbach alpha's (zowel voor Studie 1 als Studie 2). In stap 3 werd de construct validiteit van de ECR-RC onderzocht (Studie 2) door deze te relateren aan andere metingen van hechting die beschikbaar zijn in de literatuur,

namelijk de “Attachment Security Scale” (ASS), “Relationship Questionnaire” (RQ) en “Preoccupied and Avoidance Coping Questionnaire” (PACQ). Over het algemeen toonden resultaten de verwachte verbanden tussen de ECR-RC schalen en schalen van de ASS, RQ en PACQ. In een vierde stap werd de predictieve validiteit van de ECR-RC onderzocht door deze in verband te brengen met conceptueel belangrijke en frequent bestudeerde uitkomstvariabelen van hechting, namelijk emotieregulatie strategieën en depressieve symptomen. Ook deze resultaten vormden verdere evidentie dat de ECR-RC een goed instrument is om angstige en vermijdende hechting te meten tijdens het midden van de kindertijd en de vroeg adolescentie. Naar onze visie heeft de ECR-RC enkele belangrijke voordelen die de reeds bestaande hechtingsmetingen voor deze leeftijdsgroep niet bevatten. Enerzijds maakt de vragenlijst een duidelijk onderscheid tussen angstige en vermijdende hechting in plaats van een algemene meting van veilige versus onveilige hechting te bieden (bvb., ASS). Anderzijds heeft de vragenlijst een duidelijke factorstructuur en schalen met sterke interne consistentie (in tegenstelling tot de RQ). Tot slot lijkt de vragenlijst sterk aan de ECR-R voor gebruik bij adolescenten en volwassenen zodat longitudinaal onderzoek naar hechting vanaf de kindertijd tot volwassenheid mogelijk wordt (in tegenstelling tot de PACQ die leeftijdsspecifieke items omvat).

### **Hoofdstuk 3: De rol van depressogene persoonlijkheid en hechting in de intergenerationele gelijkenis van depressieve symptomen: Een studie met vroeg adolescenten en hun moeders**

Voorgaand onderzoek naar de etiologie van depressie bracht ouderlijke depressie vaak naar voor als een risicofactor voor de ontwikkeling van depressieve symptomen bij kinderen (bvb., Goodman & Gotlib, 1999). Minder eenduidige resultaten werden echter bekomen omtrent specifieke



onderliggende psychologische processen die verantwoordelijk zouden zijn voor deze intergenerationale gelijkenis (Hammen et al., 2004). Het centrale doel van dit hoofdstuk is om deze beperking te overwinnen door twee goed gegronde theorieën over de rol van depressogene persoonlijkheid (Beck, 1983) en hechting (Bowlby, 1980; 1988) in de ontwikkeling van depressie te onderzoeken. Meer specifiek wordt een geïntegreerd model getoetst waarbij Beck's persoonlijkheidsdimensies (sociotropie en autonomie) en de twee centrale dimensies van gehechtheid (angst en vermijding) worden onderzocht als mogelijke mediërende factoren in de intergenerationale gelijkenis in depressieve symptomen. Vanuit verschillende modellen (bvb., Goodman & Gotlib, 1999) wordt depressie namelijk gelinkt aan zowel intrapersonlijke (persoonlijkheid) als interpersoonlijke (hechting) processen.

De eerste doelstelling van de studie was het bestuderen van de intergenerationale gelijkenis in depressieve symptomen tussen moeder en kind. Hoewel intergenerationale gelijkenis op basis van voorgaande studies algemeen genomen wordt verwacht (bvb., Connell en Goodman, 2002), waren voorgaande effectgroottes veelal van de kleine orde. Ook de resultaten van het huidige onderzoek leunen opmerkelijk dicht aan bij de resultaten van de meta-analyse van Connell en Goodman (2002), namelijk een lage tot gemiddelde intergenerationale gelijkenis van depressieve symptomen.

De tweede doelstelling van de studie was het onderzoeken van twee theoretisch relevante psychosociale risicofactoren (nl. depressogene persoonlijkheid en hechting) in de intergenerationale gelijkenis van depressieve symptomen. In een eerste stap werd de intergenerationale gelijkenis van elk van de risicofactoren afzonderlijk onder de loep genomen. De huidige resultaten bevestigen de intergenerationale gelijkenis van zowel sociotropie en autonomie als van angst en vermijding. In een tweede stap werd het verband tussen beide risicofactoren onderling onderzocht. Zoals in

voorgaand onderzoek (bvb., Sibley, 2007), bleek sociotropie uniek gerelateerd te zijn aan angstige hechting, terwijl autonomie een verband vertoont met zowel angstige als vermijdende hechting. In een derde stap werd de rol van de intergenerationale gelijkens van depressogene persoonlijkheid en hechting onderzocht in de gelijkens van depressieve symptomen tussen moeder en kind. De resultaten van dit hoofdstuk bieden evidentie voor onze hypothese dat geobserveerde gelijkens tussen depressieve symptomen bij ouders en hun kinderen een functie is van dieper gelegen, meer fundamentele persoonlijkheid-gerelateerde (depressogene persoonlijkheid) en interpersoonlijke processen (hechting).

#### **Hoofdstuk 4: De rol van opvoeding en hechting in de intergenerationale gelijkens van internaliserende symptomen**

Naast bovengenoemde risicofactoren (nl., depressogene persoonlijkheid en hechting), werd in de literatuur ook veel aandacht besteed aan de rol van opvoeding in de ontwikkeling van depressieve symptomen (bvb., Barber, Stolz, Olsen, & Maughan, 2005). Theorie en empirisch onderzoek pleiten bovendien voor een sterk verband tussen opvoedingdimensies en dimensies van hechting. De hechtingstheorie voorziet een sterke basis om voorspellingen te maken over het verband tussen opvoeding en hechting. Om een veilige hechtingsrelatie te promoten dienen ouders hun kinderen te troosten, kalmeren en beschermen in stressvolle situaties (veilige haven door responsiviteit; Bowlby, 1988), maar ook autonome actie en ontdekking toe te laten en te ondersteunen (veilige basis door autonomie-ondersteuning; Ainsworth, 1969).

Hoofdstuk 4 had als doel de rol van moederlijke opvoeding (responsiviteit en autonomie-ondersteuning) en hechting tussen moeder en kind (angst en vermijding) te onderzoeken in de intergenerationale gelijkens van internaliserende symptomen. Meer specifiek wordt deze onderzoeksvraag

onderzocht in een heterogene steekproef van zowel jongeren die in behandeling zijn voor psychologische problemen als jongeren uit de algemene populatie ( $N = 238$ ) en hun moeders. Net als in hoofdstuk 3, was de eerste doelstelling van de huidige studie het bestuderen van de intergenerationele gelijkens in internalizerende symptomen bij moeder en kind. De resultaten van het huidige onderzoek resulteren in een ietwat hogere gemiddelde effectgrootte dan deze die werd bekomen in hoofdstuk 3 en in de meta-analyse van Connell en Goodman (2002). Enkele mogelijke redenen hiervoor zijn de multi-informant bevraging van internalizerende symptomen bij adolescenten en de bevraging van een heterogene steekproef in de huidige studie.

De tweede doelstelling was het onderzoeken van de rol van opvoeding en hechting in de intergenerationele gelijkens van depressie. De resultaten van deze studie tonen aan dat deze onderliggende factoren minstens gedeeltelijk de intergenerationele gelijkens van internalizerende symptomen verklaren. In overeenstemming met voorgaand onderzoek (bvb., Karavasillis, Doyle & Markiewicz, 2003) waren er ook betekenisvolle en specifieke verbanden tussen opvoedingsdimensies en hechtingsdimensies. Responsiviteit is daarbij initieel gerelateerd aan vermijding, terwijl autonomie-ondersteuning initieel gerelateerd is aan angst. Samengevat toont de huidige studie aan dat depressieve symptomen bij moeders zich kunnen manifesteren in maladaptieve opvoedingsgedragingen, die geassocieerd zijn met onveilige hechtingsrepresentaties bij de adolescent. Op hun beurt zijn deze angstige en vermijdende hechtingrepresentaties gerelateerd aan internalizerende symptomen bij de adolescent.

## **Hoofdstuk 5: Longitudinale dynamieken van depressogene persoonlijkheid en hechtingsdimensies in de adolescentie: Een onderzoek naar het verband met verandering in depressieve symptomen**

Bij de ontwikkeling van depressieve symptomen werden zowel depressogene persoonlijkheidsdimensies (Blatt & Maroudas, 1992) als dimensies van gehechtheid (Bowlby, 1980) geïdentificeerd als kwetsbaarheidsfactoren voor depressie. Ook empirisch werden beide factoren intensief onderzocht in relatie tot depressie bij zowel adolescenten als volwassenen (bvb., Beck, Taylor, & Robbins, 2003; Muris, Meesters, van Melick, & Zwambag, 2001). Gegeven de conceptuele gelijkheid tussen dimensies binnen beide kwetsbaarheidsdomeinen (sociotropie, autonomie en respectievelijk angst en vermijding), hebben verschillende studies bovendien het verband tussen beide psychosociale processen onderling onderzocht (bvb., Sibley, 2007). De doelstelling van hoofdstuk 5 is het verband tussen depressogene persoonlijkheidsdimensies en dimensies van gehechtheid verder te exploreren vanuit een longitudinaal perspectief. Voor de huidige studie werden 289 middelbare school studenten drie keer bevraagd, telkens met een interval van één jaar (3-wave cohort sequentieel design). Aan de hand van latente groeicurves werden zowel intra-individuele verschillen onderzocht in depressogene persoonlijkheid, hechting en depressieve symptomen, als verbanden tussen verandering in elk van deze constructen.

De resultaten toonden geen significante intra-individuele verandering in depressogene persoonlijkheid maar wel significante veranderingen in hechtingsdimensies en depressieve symptomen. Sociotropie en autonomie werden daarom als antecedenten voor hechtingsdimensies en depressieve symptomen gemodeleerd. Het initiële niveau van sociotropie was niet significant geassocieerd met veranderingen in hechtingrepresentaties noch

depressieve symptomen. Een hoger basisniveau van autonomie daarentegen hing samen met stijgingen in zowel hechtingsangst, hechtingsvermijding als depressieve symptomen. Bovendien toonden de resultaten aan dat het verband tussen initiële autonomie en stijgingen in depressieve symptomen is gemedieerd door hechtingsangst en vermijding. Samengevat kunnen we stellen dat autonome persoonlijkheidskarakteristieken leiden tot zowel angstige als vermijdende hechtingsrepresentaties, die op hun beurt geassocieerd zijn met de ontwikkeling van depressieve symptomen. Tegen de verwachtingen in (bvb., Sibley, 2007) was sociotropie niet significant geassocieerd met onveilige hechtingsrepresentaties noch met depressieve symptomen. Verder onderzoek zou kunnen nagaan of het relatief belang van sociotropie versus autonomie bijvoorbeeld afhankelijk is van de mate waarin interpersoonlijke versus prestatie-gerichte zaken meer dominant zijn in bepaalde levensfasen (bvb. belang van prestatie tijdens de adolescentie versus belang van relaties in de jong-volwassenheid).

### **Hoofdstuk 6: Hechting en depressieve symptomen in het midden van de kindertijd en vroeg adolescentie: Een test van de validiteit van het emotieregulatie model van hechting**

Een centraal gegeven binnen Bowlby's hechtingstheorie (1980) is dat vroege interacties met hechtingsfiguren een kritische context zouden vormen voor latere processen van emotieregulatie en voor de verdere psychologische ontwikkeling. Voortbouwend op dit algemeen uitgangspunt werden verschillende modellen ontwikkeld die zich specifiek gaan richten op gedifferentieerde verbanden tussen hechtingsdimensies en emotieregulatie strategieën. Shaver en Mikulincer (2002) stellen een volwassen emotieregulatie model van hechting voor waarbij angstige hechting uniek gerelateerd zou zijn aan hyperactivatie of disregulatie van emoties, terwijl

vermijdende hechting uniek gerelateerd zou zijn aan deactivatie of suppressie van emoties.

De eerste doelstelling van hoofdstuk 6 was het testen van de validiteit van dit emotieregulatie model van hechting bij een steekproef van kinderen en adolescenten. Twee cross-sectionele studies (Studie 1,  $N = 339$  en Studie 2,  $N = 746$ ) vonden bevestiging voor de voorspelde verbanden tussen hechtingsangst en hechtingsvermijding enerzijds en respectievelijk emotionele disregulatie en suppressie anderzijds. De tweede doelstelling van dit hoofdstuk was om het emotieregulatie model van hechting toe te passen op de ontwikkeling van depressieve symptomen bij kinderen en adolescenten. Hoewel talloze studies de mediërende rol van emotieregulatie in het verband tussen hechting en depressieve symptomen hebben bestudeerd, werd zelden onderzocht hoe verschillende emotieregulatie strategieën differentieel mediëren tussen onveilige hechtingsdimensies en psychologische moeilijkheden (Wei, Vogel, Ku, & Zakalik, 2005 als uitzondering). Deze bevindingen werden naar ons inziens nog niet onderzocht bij kinderen of adolescenten.

De resultaten van Studie 1 bieden geen bevestiging voor de mediatie hypothese gezien het verband tussen emotieregulatie strategieën en depressieve symptomen niet significant was. Een verklaring voor de afwezigheid van dit verband is de conceptualisatie van emotieregulatie als het reguleren van algemeen negatieve emoties. In Studie 2 werden emotieregulatie strategieën met specifieke referentie naar droevige emoties bevraagd. De resultaten van Studie 2 vonden bevestiging voor de mediërende rol van emotieregulatie in het verband tussen hechting en depressieve symptomen. Meer specifiek blijkt emotionele suppressie een partiële mediator te zijn voor het verband tussen vermijdende hechting en depressieve symptomen, terwijl emotionele disregulatie een partiële mediator is voor het verband tussen angstige hechting en depressieve symptomen. Emotieregulatie

strategieën om met droevige emoties om te gaan blijken een meer proximale factor te zijn voor de ontwikkeling van depressieve symptomen.

### **Hoofdstuk 7: Het emotieregulatie model van hechting: Een emotie-specifieke benadering**

In overeenstemming met hoofdstuk 6 werd ook in dit zevende hoofdstuk gefocust op de validatie van het emotieregulatie model van hechting. Gebaseerd op de veronderstelling dat het verband tussen hechting en emotiegerelateerde processen kan verschillen naargelang het type emotie (bvb., Niedenthal, Brauer, Robin, & Innes-Ker, 2002), werd hierbij de hypothese vooropgesteld dat het verband tussen hechtingsdimensies en emotieregulatie strategieën zou verschillen afhankelijk van de specifieke emoties (verdriet en woede). Eveneens in overeenstemming met het vorige hoofdstuk werden emotieregulatie strategieën onderzocht als mediërende factor in het verband tussen hechting en psychologische problemen. In tegenstelling tot hoofdstuk 6 waar depressieve symptomen als uitkomstvariabele werden onderzocht, maakt hoofdstuk 7 een onderscheid tussen internaliserende (depressieve symptomen) en externaliserende symptomen (agressief gedrag).

Twee afzonderlijke cross-sectionele studies (Studie 1,  $N = 197$  en Studie 2,  $N = 310$ ) vonden evidentie voor de hypothese dat differentiële verbanden worden verwacht tussen vermijdende hechting en emotieregulatie strategieën afhankelijk van het type emotie. Meer specifiek hangt vermijdende hechting samen met suppressie van verdriet en disregulatie van woede. Angstige hechting daarentegen hangt consistent samen met disregulatie van zowel verdriet als woede. Volgens Shaver en Mikulincer (2002) zouden angstig gehechte individuen zich niet in staat voelen hun eigen negatieve emoties (zowel verdriet als woede) te reguleren. Tezelfdertijd zouden angstig gehechte personen verwachten dat anderen niet steeds beschikbaar zijn wanneer ze hen nodig hebben. Als gevolg zouden personen die hoog scoren op angstige

hechting overdreven waakzaam zijn voor het detecteren van een bedreiging in hun omgeving en van de beschikbaarheid van de hechtingsfiguur. Deze overdreven waakzaamheid zou ertoe leiden dat angstig gehechte mensen vaak overspoeld worden door negatieve emoties (disregulatie van zowel verdriet als woede). Wat vermijdende hechting betreft, wordt op basis van emotie theorieën (bvb., functionalistische theorie van emoties, Campos, Mumme, Kermoian, & Campos, 1994) verondersteld dat deze hechtingsdimensie zou samenhangen met disregulatie van woede en suppressie van verdriet. Vermijdend gehechte personen zouden gevoelens van boosheid niet onderdrukken, gezien woede geassocieerd is met dominantie in de interactie en anderen op een afstand houdt (Zeman & Shipman, 1997). In tegenstelling hiermee zouden vermijdend gehechte personen gevoelens van verdriet wel onderdrukken gezien deze gevoelens persoonlijke zwakheid tentoonstellen en bescherming van anderen uitlokken (Jenkins & Ball, 2000).

In overeenstemming met de resultaten van het vorige hoofdstuk werd in een tweede deel van hoofdstuk 7 onderzocht of emotie-specifieke emotieregulatie strategieën de relatie tussen hechting en zowel internaliserende als externaliserende problemen mediëren. Uit de resultaten bleek dat het verband tussen angstige hechting en zowel internaliserende als externaliserende symptomen partieel gemedieerd wordt door disregulatie van respectievelijk verdriet en woede. Het verband tussen vermijdende hechting en externaliserende symptomen anderzijds zou volledig gemedieerd worden door disregulatie van woede. In tegenstelling tot voorgaand onderzoek (bvb., Cicchetti, Ackerman, & Izard, 1995) is het verband tussen emotionele suppressie en psychologische problemen niet significant. Dit zou mogelijks verklaard kunnen worden door de adaptieve waarde die suppressie op korte termijn kan hebben.



## Hoofdstuk 8: Algemene discussie

In hoofdstuk 8 werd een algemeen overzicht en een integratie weergegeven van de belangrijkste onderzoeksresultaten over de verschillende studies heen. De resultaten van hoofdstuk 3, 4 en 5 leveren een bijdrage tot een beter begrip van psychosociale factoren (zowel intrapersoonlijk als interpersoonlijk) in de ontwikkeling en intergenerationele samenhang van depressieve symptomen. De resultaten van hoofdstuk 6 en 7 belichten de empirische relaties tussen hechting, emotieregulatie en psychologische problemen.

### *Psychosociale processen in de ontwikkeling en intergenerationele samenhang van depressieve symptomen*

Samengevat kan men stellen dat het huidige onderzoeksproject evidentie vindt voor het belang van depressogene persoonlijkheid, hechting en opvoeding als onderliggende factoren in de ontwikkeling en intergenerationele samenhang van depressieve symptomen. Meer specifiek, moederlijke sociotrope en autonome persoonlijkheidskarakteristieken, die samenhangen met ouderlijke depressieve symptomen, zouden zich vertalen in angstige en vermijdende hechtingsrepresentaties van de relatie met hun partner. Op basis van de theorie verwachten we daarenboven dat angstige en vermijdende hechting bij moeders zou geassocieerd zijn met respectievelijk minder autonomie-ondersteunende en responsieve opvoeding. Op zijn beurt zouden deze opvoedingsdimensies samenhangen met angstige en vermijdende hechtingsrepresentaties bij kinderen van de relatie met hun moeder. Angstige en vermijdende hechting zouden eveneens gerelateerd zijn aan sociotrope en autonome karakteristieken en een verhoogde prevalentie van depressieve symptomen bij kinderen.

*De rol van emotieregulatie in het verband tussen hechting en  
depressieve symptomen*

Een tweede pad dat in dit proefschrift onder de loep werd genomen benadrukt de rol van emotieregulatie strategieën in het verband tussen hechting en depressieve symptomen. Hoewel de resultaten uit hoofdstuk 6 en 7 evidentie bieden voor het emotieregulatie model van hechting (Shaver & Mikulincer, 2002), lijkt het type emotie dat wordt bestudeerd het verband tussen hechtingrepresentaties en specifieke emotieregulatie strategieën te beïnvloeden. Bij het bestuderen van droevige emoties of algemeen negatieve emoties blijkt angstige hechting primair samen te hangen met disregulatie, terwijl vermijdende hechting primair samenhangt met suppressie. Voor het reguleren van gevoelens van kwaadheid blijkt dat zowel angstige als vermijdende hechting samenhangt met disregulatie. Boze emoties zouden dus eerder niet onderdrukt worden bij individuen met angstige of vermijdende hechtingsrepresentaties.

Processen van emotieregulatie lijken bovendien te functioneren als een mediator in de relatie tussen hechting en psychologische problemen. Disregulatie van droevige emoties zou een mediator zijn in het verband tussen angstige hechting en depressie, terwijl disregulatie van kwaadheid het verband tussen vermijdende hechting en externaliserende symptomen zou mediëren. Suppressie van negatieve emoties (algemeen negatief, boosheid of verdriet) werd niet consistent teruggevonden als mediator in het verband tussen hechting en psychopathologie.

*Klinische implicaties*

De resultaten van dit proefschrift hebben ook relevantie voor de klinische praktijk. Ten eerste werd binnen het huidige onderzoeksproject een kindvriendelijke versie van de Experiences in Close Relationships Scale-Revised

(ECR-RC) ontwikkeld. Dit instrument lijkt een veelbelovende meting om angstige en vermijdende hechting bij kinderen te onderzoeken. Verder grootschalig onderzoek is echter nodig om normgegevens te verzamelen met specificatie voor geslacht, leeftijd, gezinssituatie en hechtingsfiguur.

Ten tweede houdt de identificatie van verschillende risicofactoren voor de ontwikkeling van depressieve symptomen belangrijke aanknopingspunten voor preventie en behandeling in zich. Zowel het installeren van veilige hechtingsrepresentaties, afleren van buitensporig sociotrope of autonome gedachten, maladaptieve opvoedingsgedragingen en emotieregulatiestrategieën lijken van belang te zijn. Gezien de robuustheid van elk van de verschillende processen, zou een enkelvoudige focus op één van deze factoren (bvb., emotieregulatie) als preventie of behandeling voor depressie een kort leven kunnen beschoren zijn indien de dieperliggende mechanismen niet worden aangepakt.

#### *Beperkingen en aanbevelingen voor toekomstig onderzoek*

Tot slot werden in dit laatste hoofdstuk ook een aantal beperkingen en aanbevelingen voor toekomstig onderzoek uitgewerkt. Ten eerste erkennen we dat depressogene persoonlijkheid, hechting en opvoeding slechts enkele factoren vormen in de complexe mechanismen die probleemgedrag tot stand brengen en overdragen van de ene generatie naar de volgende. Verdere inspanningen zijn echter nodig om interacties tussen bijvoorbeeld psychologische en fysiologische processen in kaart te brengen (bvb., zoals voorgesteld in het geïntegreerd model van Goodman en Gotlib, 1999). Ten tweede biedt het huidig onderzoek geen uitsluitsel over de causaliteit van verbanden tussen opvoeding, hechting, emotieregulatie en psychologische problemen. Om de oorzakelijke rol van elk van de factoren en de temporele mechanismen die hiermee verband houden in kaart te brengen, is het echter nodig dat dit onderzoek aangevuld wordt met longitudinale, prospectieve

studies. Tenslotte benadrukken we dat de mediërende rol van emotieregulatie in het verband tussen hechting en depressie nog steeds een onvoltooid project is. Verdere inspanningen dienen bijvoorbeeld geleverd te worden om de conclusies van het huidig onderzoek te vertalen in klinische groepen.

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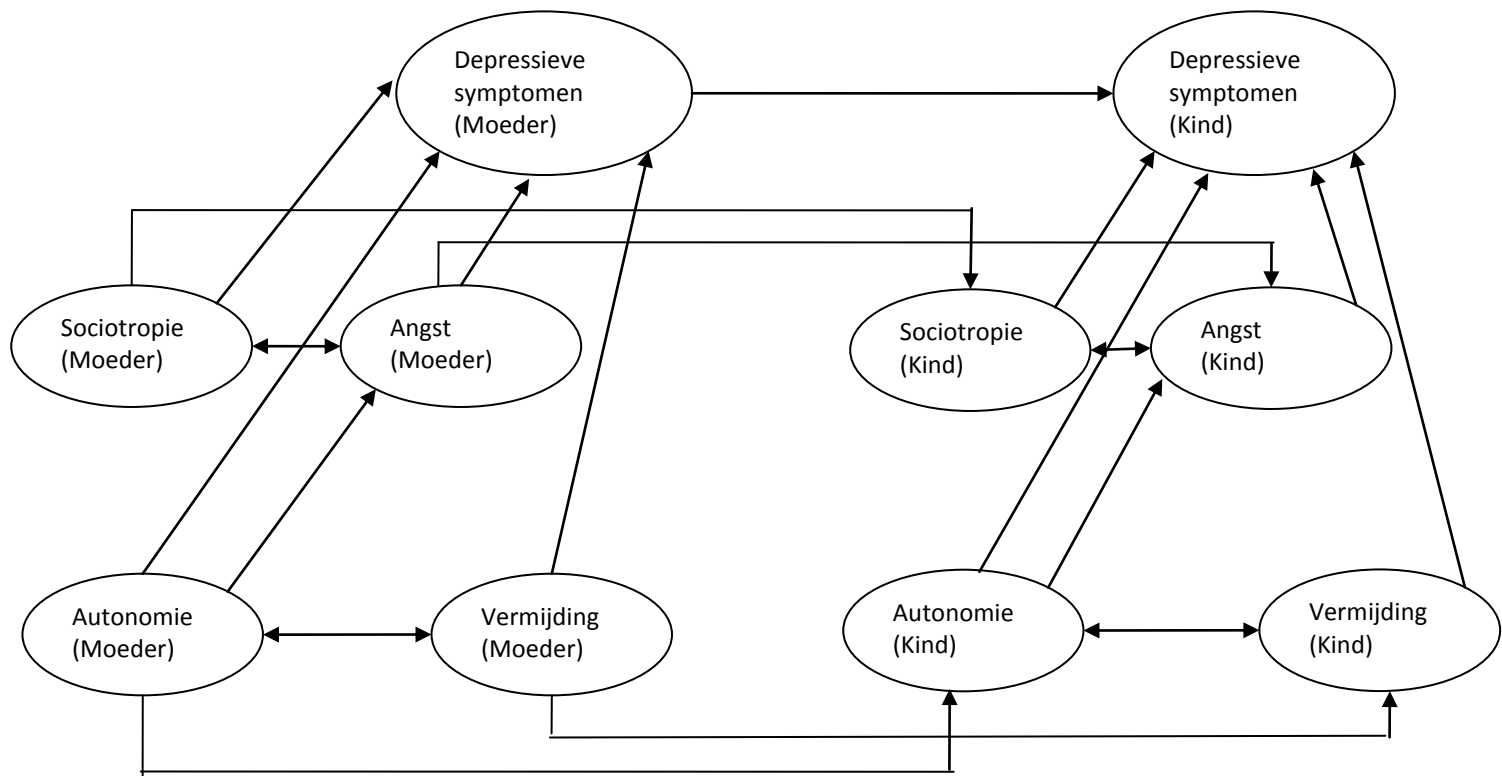
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Figuur 1. het vooropgesteld intergeneratieel model