What, me worry?

Adolescent Generalized Anxiety Disorder symptoms and problematic interactions in the family

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What, me worry?

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Wat, ik piekeren?

Symptomen van gegeneraliseerde angststoornis bij adolescenten en problematische interacties in het gezin

(met een samenvatting in het Nederlands)

Proefschrift

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Dedicated to
Samuel and Veere,
Wijsbroek adolescents to be.

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General introduction

Generalized Anxiety Disorder (GAD) is one of the most prevalent anxiety disorders in the general adolescent population (Cartwright-Hatton, McNicol, & Doubleday, 2006; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Rapee, 1991; Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009; Verhulst, Van der Ende, Ferdinand, & Kasius, 1997). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000), the main symptom of GAD is excessive, uncontrollable anxiety and worry that causes distress and functional impairment. Due to its relatively recent addition to the DSM-IV-TR (APA, 2000) (Hale, Engels, & Meeus, 2006) this disorder has received less attention than other adolescent anxiety disorders. Adolescents' GAD worry symptoms are clustered mainly around social-evaluative concerns with respect to interpersonal relationships (Hudson & Rapee, 2004; Weems, Silverman, & La Greca, 2000). These social-evaluative concerns tend to be expressed in the shape of problematic interactions in the family, especially in the context of parenting characteristics and family relations (Hale, Engels, & Meeus, 2006; Muris, Meesters, Merckelbach, & Huelsenbeck, 2000; Van Brakel, Muris, Bögels, & Thomassen, 2006).

With regard to parenting characteristics and adolescent GAD, there is a significant correlation between adolescent GAD symptoms and adolescent perceptions of parental rejection and control. For example, Muris and Merckelbach (1998) found a significant relationship between parental rejection and (pre-) adolescent GAD symptoms, while Hale et al. (2006) demonstrated that parental rejection is a predictor of adolescent GAD symptoms. These studies also confirmed a significant relationship between parental control and adolescent GAD symptoms. However, as Hale et al. (2006) and several meta-analytic reviews (McLeod, Wood, &Weisz, 2007; Van der Bruggen, Stams, & Bögels, 2008) mentioned, the direction of effects between parental controlling behaviors and adolescent GAD symptoms was still unknown. Additional research was needed to gain an understanding of the longitudinal relationships and the direction of effects between perceived parental control and self-reported GAD symptoms.

With respect to problematic interactions in the context of family relations, a significant correlation was found between adolescent GAD symptoms and parent-adolescent conflict (Hale et al., 2006; Van Brakel et al., 2006) and between anxiety symptoms and parental marital conflict (Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006; Grych & Fincham, 1993; Rhoades, 2008). The relationship between parent-adolescent conflict and adolescents' internalizing problem behaviors appeared to depend at least partially on the adolescents' conflict resolution style (Branje, Van Doorn, VanderValk, & Meeus, 2009). A negative conflict resolution style with high levels of conflict engagement, exiting statements and withdrawal (Branje et al., 2009) was found to be linked to more frequent conflicts with the parents and

significantly higher levels of internalizing problems. However, it was not yet known to what extent these findings about conflict resolution style can be generalized to adolescent GAD symptoms.

With respect to problematic interactions in the context of family relations, it was established that there is a significant relation between parental marital conflict and specific mental health issues, such as adolescent anxiety disorder symptoms (Cummings et al., 2006; Grych & Fincham, 1993; Laursen, 1993; Rhoades, 2008). Parental marital conflicts affect the adolescent's anxiety symptoms if the adolescent perceives these marital conflicts to be negative (El-Sheikh & Harger, 2001; Kitzmann & Cohen, 2003). Since these studies of marital conflict and the adolescent's perception of marital conflict only focused on general adolescent anxiety symptoms as opposed to specific anxiety disorder symptoms such as adolescent GAD, additional research was needed to determine whether these findings also apply to GAD.

Based on these research findings this dissertation set out to investigate the relationships between adolescent GAD symptoms and problematic interactions in the family, specifically in terms of parenting characteristics and family relations, in a general adolescent population (see Figure 1.1).

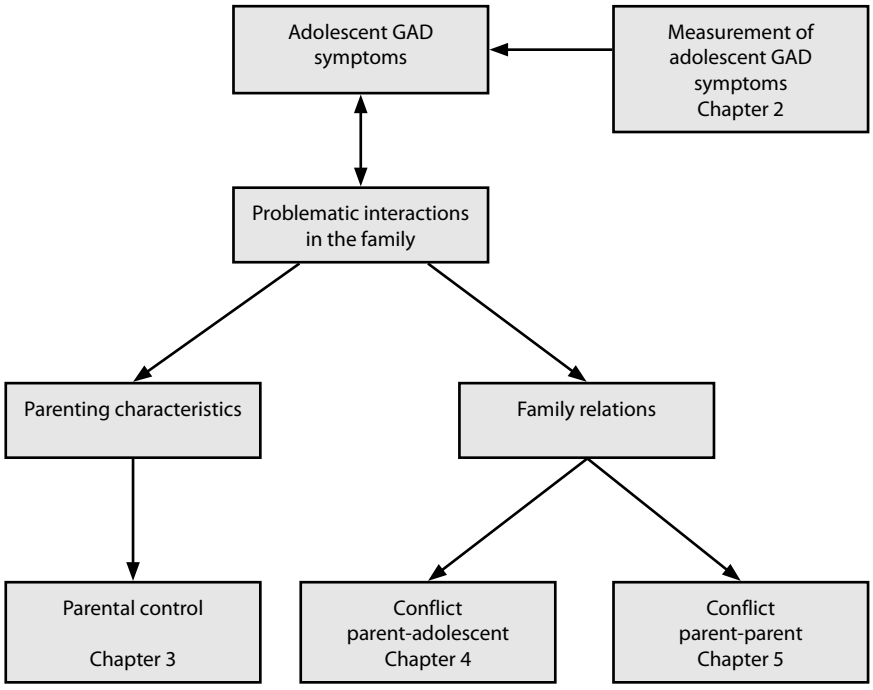

Figure 1.1 Main themes of this dissertation.

This introduction describes the main themes of this dissertation, lists the different research questions of the four empirical studies and provides a brief overview of the data and how the data were collected. The final section outlines the rest of the dissertation.

Main themes and research questions of this dissertation

Adolescent GAD symptoms: a brief overview

GAD was first introduced as a unique diagnosis for adults in the third edition of the DSM (DSM-III; APA, 1980). In the revised third edition of the DSM (DSM-III-R; APA, 1987) a separate category for children and adolescents was created: the overanxious disorder of childhood. The most recent edition of the DSM, the DSM-IV-TR (APA, 2000), merged the overanxious disorder of childhood diagnostic criteria with the GAD diagnostic criteria for adults. Strong empirical evidence suggests that anxiety disorder symptoms of children and adolescents can indeed be clustered into the DSM-classification of diagnostic criteria of anxiety disorders originally designed for adults (Kendall & Warman, 1996; Spence, 1997).

In the DSM-IV-TR (APA, 2000), GAD is characterized as excessive anxiety and worry about various events and activities (such as school and/or work performance), difficulties in controlling this worry, which leads to distress and/or functional impairment in social, occupational, school and other important areas of life, occurring more days than not for at least six months. The anxiety or worry is associated with three of the following features for more days than not in a six-month period: restlessness or feeling keyed-up or on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability, muscle tension, and sleep disturbances.

As mentioned before, GAD is one of the most prevalent adolescent anxiety disorders in the general adolescent population (Cartwright-Hatton et al., 2006; Costello et al., 2003; Rapee, 1991; Van Oort et al., 2009; Verhulst et al., 1997). Recent studies of adolescents in the general population have tracked the developmental course of adolescent GAD symptoms. Findings showed that GAD symptoms decrease from late childhood into early adolescence and increase slightly during middle and late adolescence, with girls showing more anxiety symptoms than boys (Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2008; Van Oort et al., 2009). Cross-cultural studies on the developmental course of GAD symptoms in adolescence yielded similar findings (Hale, Crocetti, Raaijmakers, & Meeus, 2010).

Measurement of adolescent GAD symptoms

In research on adolescent anxiety it has become common practice to use adolescent self-reports to identify adolescent anxiety symptoms (Hale et al., 2008; Stallings & March, 1995). Over the last decade multidimensional self-report questionnaires have been developed with subscales directly related to DSM-IV-TR anxiety disorder symptoms (Muris, Merckelbach, Schmidt, & Mayer, 1999). In a literature review, Myers and Winters (2002) argued that the Screen for Child Anxiety Related Emotional Disorders (SCARED) is one of the better anxiety questionnaires for children and adolescents. The original SCARED is a self-report questionnaire with 38 items clustered into five anxiety subscales (Birmaher et al, 1997, 1999). Four of the subscales represent DSM-IV-TR anxiety disorders: Panic Disorder (PD), Social Phobia (SP), Generalized Anxiety Disorder (GAD) and Separation Anxiety Disorder (SAD). The last subscale measures School Anxiety (SA; or school refusal). Although SA is a serious problem in childhood and adolescence (Fremont, 2003), it is not a DSM-IV-TR anxiety disorder. The first studies of the SCARED by Birmaher et al. (1997, 1999) focused exclusively on patients with an anxiety disorder. Follow-up studies by Muris et al. (1999, 2000) looked only at young school children and not adolescents; these studies did not take into account age and sex group differences.

Chapter 2 deals with the first study discussed in this dissertation, which poses the following research question:

> *Does the SCARED have a five-factor structure for male and female adolescents, for early adolescents (10-13 years old) and middle adolescents (14-18 years old) and for Dutch adolescents and adolescents of an ethnic minority in the general Dutch adolescent population?*

The study explores whether the SCARED has a five-factor structure for Dutch adolescents in the general population. More specifically, the factor structure of the SCARED is investigated by means of confirmatory factor analyses, conducted for males and females, early adolescents (10-13 years old) and middle adolescents (14-18 years old), and for ethnically Dutch adolescents and adolescents of non-Dutch backgrounds. Analysis of variance is applied to compare the mean scores between the various groups.

The other three empirical studies presented in this dissertation use the GAD subscale of the SCARED to explore the relationship between adolescent GAD symptoms and problematic interactions in the family.

Problematic interactions in the family

Parenting characteristics: parental control

There is a significant correlation between the parenting characteristic of control and adolescent GAD symptoms (Muris & Merckelbach, 1998; Hale et al., 2006). Empirical

studies based on parenting literature distinguish between behavioral control and psychological control, each of which has its own distinct impact on child outcomes (Barber, Olsen, & Shagle, 1994; Smetana & Daddis, 2002). However, the distinction between behavioral control and psychological control has been criticized. Recent studies and literature reviews have noted that it is not possible to clearly distinguish behavioral control from psychological control or emotional from behavioral outcomes (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010; Wang, Pomerantz, & Chen, 2007). The authors suggest that parental control be understood as one of two dimensions of parenting: parental control and parental structure. Parental control is characterized by parental pressure, intrusiveness and dominance with regard to the adolescent's feelings, thoughts and behaviors. Parental structure is characterized by the organization of the adolescent environment to facilitate the adolescent's competence (Grolnick & Pomerantz, 2009; Wang et al., 2007).

Nevertheless, in a very recent study, Soenens and Vansteenkiste (2010) argue for maintaining the distinction between parental behavioral control and psychological control. They specifically argue that one form of parental control refers to parents' attempts to regulate and structure their child's behavior, in other words, parental behavioral control. They go on to suggest that this form of parental control is different from the second form of parental control, which "…refer[s] to a controlling, pressuring or coercive parenting environment that controls children's feelings, thinking, and behaving" (Soenens & Vansteenkiste, 2010, p. 86), in other words, psychological control. This dissertation maintains the distinction and uses parental behavioral control and parental psychological control as parenting characteristics.

The second study discussed in this dissertation poses the following research question:

> *What is the direction of effects between perceived parental behavioral control and psychological control and self-reported adolescent GAD and SAD symptoms?*

This study (Chapter 3) investigates the direction of effects between perceived parental behavioral control and psychological control and perceived adolescent GAD and Separation Anxiety Disorder (SAD) symptoms. A three-wave structural equation model based on maximum likelihood estimation is employed to examine the relationship between parental behavioral and psychological control and adolescent GAD symptoms over time, and parental behavioral and psychological control and adolescent SAD symptoms over time. Analyses of the total adolescent sample and multi-group analyses are conducted to explore the effects of age and sex among four groups of adolescents: early adolescent boys, early adolescent girls, late adolescent boys and late adolescent girls.

No consensus has been reached yet on the direction of effects between parental control and adolescent anxiety. It is unclear which of the most prominent direction-of-effect models for parent-adolescent interactions - the parent effect model, the child

effect model and / or the reciprocal effect model - best explains the direction of effects between parental behavioral and psychological control, and adolescent GAD and SAD anxiety symptoms (Branje, Hale, & Meeus, 2008; Lollis & Kuczynski, 1997). Therefore, this study refrains from formulating a specific hypothesis regarding the direction of effects. Instead, it assesses the relationships over time in an explorative manner, and also looks at age and sex differences between parental behavioral and psychological control and GAD and SAD symptoms. Since previous studies of parental control and adolescent GAD symptoms were based on cross- sectional designs, this longitudinal study provides more clarity on the direction of effects between adolescent GAD symptoms and parental control.

Family relations: parent-adolescent conflicts

Adolescence, and especially early adolescence, is a period in which conflicts with parents frequently occur (Arnett, 1999; Galambos & Almeida, 1992; Laursen, Coy, & Collins, 1998; Pinquart & Silbereisen, 2002). Parent-adolescent conflicts are generally interpreted in the context of adolescent development from childhood to adulthood (Erikson, 1950) and are thought to play an important role in the adolescent's achievement of autonomy and independence (Grotevant & Cooper, 1986; Steinberg, 1990). As mentioned earlier, parent-adolescent conflict has been positively related to adolescent internalizing problem behaviors (Buehler & Gerard, 2002; Robin & Foster, 1989). This relation is moderated by the conflict resolution style (Branje et al., 2009). A negative conflict resolution style with high levels of conflict engagement, exiting statements, and withdrawal (Branje et al., 2009) was found to be related to more conflicts with parents and significantly higher levels of internalizing problems. Research has shown that adolescents with GAD symptoms are especially prone to use avoidant coping behaviors in negative interactions (Borkovec, Newman, Pincus, & Lytle, 2002; Newman, Castonguay, Borkovec, & Molnar, 2004; Riskind, 2005). Recent studies have measured one particular destructive conflict style characterized by avoidant coping behaviors in parent-adolescent conflicts: the use of exiting statements as a conflict resolution style (Larsen, Branje, VanderValk, & Meeus, 2007; Branje et al., 2009). This conflict resolution style is conceptualized as the adolescent expression of the desire to end the relationship without resolving the conflict. The adolescent expresses the wish to disown his or her parents and wants to cut off contact with them (Larsen et al., 2007).

This dissertation explores whether adolescent exiting statements in the context of adolescent-parent conflicts are related to adolescent GAD symptoms, as described in the following research question:

> *Is the adolescent conflict resolution style of exiting statements associated with perceived GAD symptoms such as internalizing problem behavior, and perceived delinquency symptoms such as externalizing problem behavior?*

The third study, in Chapter 4, examines the association between adolescents' use of exiting statements as a conflict resolution style in parent-adolescent conflicts and self-rated adolescent GAD symptoms and delinquency symptoms in early and late adolescent males and females in the general population.

A multi-group structural equation model is employed to analyze the relationship between the constructs and to explore potential adolescent age and sex differences in the relationship between exiting statements and GAD and delinquency symptoms. Based on theoretical notions and earlier research demonstrating that adolescents with GAD symptoms and adolescents with delinquent behavior symptoms both have problematic parental relationships, it is to be expected that there is a significant and positive relation between the use of exiting statements as a conflict resolution style on the one hand and GAD symptoms and adolescent delinquency symptoms on the other. In addition, this study explores differences in exiting statements and problem behavior between early and late adolescent age groups as well as between adolescent males and females. Specifically with regard to adolescent age groups, two alternative hypotheses are tested. Based on the findings that early adolescence is a period with a high prevalence of parent-adolescent conflicts (Arnett, 1999; Galambos & Almeida, 1992; Laursen et al., 1998; Pinquart & Silbereisen, 2002), the use of exiting statements in early adolescence is expected to be more strongly associated with GAD and delinquency symptoms than in late adolescence. A second hypothesis is based on the finding that parents and late adolescents develop more egalitarian relationships (De Goede, Branje, & Meeus, 2009; Russell, Pettit, & Mize, 1998) in which a destructive conflict resolution style becomes increasingly less appropriate. We expect there to be a stronger relationship between exiting statements and self-rated GAD symptoms and delinquency symptoms in late adolescence than in early adolescence. One earlier study (Branje et al., 2009) on the use of exiting statements as a destructive conflict resolution style focused on internalizing and externalizing problems in general, as opposed to this study which focuses on GAD symptoms and delinquency.

Family relations: parent–parent conflicts

Several studies have demonstrated a significant relationship between perceived parental marital conflict and specific mental health issues such as adolescent anxiety disorder symptoms (Cummings et al., 2006; Grych & Fincham, 1993; Laursen, 1993; Rhoades, 2008). Adolescents with GAD symptoms generally perceive social interactions in family relations as worrisome and tend to perceive these interactions as negative (Hale et al., 2006; Muris & Merckelbach, 1998; Rapee, 1997; Warren & Sroufe, 2004; Weems & Costa, 2005; Weems & Stickle, 2005; Westenberg, Drewes, Siebelink, & Treffers, 2004). Adolescents seem to have a propensity to perceive parental marital conflict as negative.

The research question of the fourth and final study of this dissertation is:

How are marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and adolescent self-reported GAD symptoms related to each other over time?

This study (Chapter 5) examines how marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and adolescent self-reported GAD symptoms are related to each other longitudinally. In a multi-informant three-wave design, structural equation modeling is conducted to answer the research question. Since this is the first study to investigate the relationship between marital conflict, adolescent perception of parental marital conflict and adolescent self-reported GAD symptoms in a multi-informant, longitudinal design, these relationships are examined in an explorative fashion. The study sheds new light on adolescent GAD symptoms and problematic interactions in family relations.

Method

The CONAMORE and RADAR data set

For the studies in this dissertation, data from a five-wave longitudinal project entitled Conflict And Management Of RElationships (CONAMORE; Meeus et al., 2004) were used. This project included a main dataset of adolescents from the general population and a subset of these adolescents who were additionally researched with their parents, the family sample labeled as RADAR old. In the main dataset of CONAMORE, 923 early adolescents (mean age 12.4 years, *SD* = 0.6, ranging from 10-15 years) and 390 middle adolescents (mean age 16.7 years, *SD* = 0.8, ranging from 16-20 years) from twelve high schools in the Dutch province of Utrecht annually completed a battery of questionnaires at school for five consecutive years. The questionnaires addressed adolescent relationships, adolescent functioning and activities in daily life. For the family sample subset (RADAR old), data were collected annually for both parents and the adolescent with a one-year interval between the three waves. The adolescent population consisted of 327 adolescents. Of the adolescents that participated in the family sample, 139 were boys (48.6 %) and 168 girls (51.4 %). The mean age of the adolescents at the beginning of this study was 14.23 years (ranging from 12 to 16 years, *SD* = 0.52). The mean age of the fathers and mothers was 47.8 years (ranging from 36 to 67, *SD* = 5.05) and 45.2 years (ranging from 35 to 58 years, *SD* = 4.25) respectively.

Measures

Adolescent anxiety symptoms

Adolescent anxiety symptoms were measured with the SCARED (Birmaher et al., 1997, 1999). For the empirical studies in this dissertation, the original 38-item SCARED questionnaire, translated into Dutch by Muris et al. (1999) was used. The SCARED is a self-report questionnaire that measures the occurrence of adolescent anxiety disorder symptoms on a three-point Likert scale: (0) *almost never*, (1) *sometimes*, or (2) *often* (Birmaher et al., 1997, 1999). The subscales of the questionnaire are: Panic Disorder symptoms (PD), Generalized Anxiety Disorder symptoms (GAD), Separation Anxiety Disorder symptoms (SAD), Social Phobia symptoms (SP) and School Anxiety symptoms (SA). Sample items are: "I am afraid of having anxiety (or panic) attacks" (PD), "I worry if others will like me" (GAD), "I worry something bad might happen to my parents" (SAD), "I feel shy with people I don't know well" (SP) and "I worry about going to school" (SA).

Adolescent perception of behavioral control and psychological control

In order to measure perceived behavioral and psychological control, this study used the 'behavioural control' and 'psychological control' scales of the Children's Reports of Parental Behaviour Inventory (CRPBI; Kawash & Clewes, 1988; Schaefer, 1965a, 1965b) . Both control scales of the CRPBI consist of ten items for each scale, with scores ranging from (0) *never* to (4) *always*. Sample questions are: "My parents are very strict with me" (behavioral control) and: "My parents do not look at me if I disappointed them" (psychological control).

Adolescent perception of parental marital conflict

To assess adolescents' perceptions of the frequency and content of parental marital conflict, a five item scale (Larsen et al., 2007) was used. The five items were: (1). "How often – as far as you know – do your parents argue about money?", (2). "How often – as far as you know – do your parents disagree?", (3). "Are your parents – as far as you know – dissatisfied about their relationship?", (4). "Do your parents – as far as you know – sometimes have serious conflicts?", and (5). "As far as you know, have your parents been thinking about ending their relationship anytime in the past year?" Adolescents supplied answers on a five-point Likert scale ranging from (1) *never* to (5) *always*.

Exiting statements as a conflict resolution style

The use of exiting statements as a conflict resolution style was measured by a Dutch adaptation of Kurdek's Conflict Resolution Style Inventory (CRSI; Kurdek, 1994), which measures four conflict resolution styles: conflict engagement, positive problem solving, withdrawal and compliance. The Dutch adaptation included a fifth conflict resolution

style, 'exiting statements', which are the adolescent's expression of a desire to minimize or cut off contact with his or her parents and to no longer consider them as parents, designed by Meeus et al. (2004). Items pertaining to exiting statement behaviors were used in previous research and added to Kurdek's measure (i.e., Branje et al., 2009). The adolescent rated the four items of this subscale on a five-point Likert scale: (1) *never*, (2) *seldom*, (3) *sometimes*, (4) *often*, or (5) *always*. The four 'exiting statements' items were: (1) "I no longer consider my parents as my parents", (2) "I have told my parents that I never want to have anything to do with them again", (3) "I have told my parents I do not want to have any contact with them", and (4) "I have told my parents I never want to talk to them again".

Marital conflict

To assess marital conflict, conflicts were identified using an abbreviated list of 16 topics adapted from the 44 topics of the Issues Checklist (Prinz, Foster, Kent, & O'Leary, 1979; Robin & Foster, 1984). The occurrence of conflicts was measured on a five-point Likert scale: (1) *never*, (2) *seldom*, (3) *sometimes*, (4) *often*, and (5) *always*. A sample item is: "Indicate how often you and your partner have had a conflict in the last week (the last seven days) concerning the following theme: 'difference in interpretation of ideas' ".

Outline of this dissertation

The next four chapters, Chapters 2, 3, 4 and 5, discuss the empirical studies on which this dissertation is based. Each chapter addresses one of the research questions listed in this general introduction. The final Chapter, Chapter 6, presents an overview of the findings from the empirical studies and their implications. The general discussion provides an integrated approach to the findings concerning adolescent GAD symptoms and problematic interactions in the family. The last section of this dissertation consists of a summary, an acknowledgement, a curriculum vitae and a publication list.

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Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in a Dutch population of adolescents

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Abstract

Objective: This study examined the psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in a large sample of adolescents from the general population.
Method: In 2001, 1,340 junior high and high school adolescents in the Netherlands completed the SCARED. The SCARED is a questionnaire that purports to measure five child and adolescent anxiety symptom dimensions. The factor structure of the SCARED was investigated by means of confirmatory factor analyses which were conducted for males and females, early (10–13 years) and middle (14–18 years) adolescent groups, and for Dutch and ethnic minorities. Analysis of variance was carried out to compare mean scores for the various groups.
Results: The factor structure of the SCARED not only had the best fit for the general adolescent population, but also for various age, gender and ethnic groups. It was also found that the SCARED scores of the adolescent subgroups differed from one another in agreement with previous studies on adolescent anxiety disorder symptoms.
Conclusions: The findings of this study support the claim that the SCARED has a five factor structure, and demonstrates the usefulness of the SCARED for measuring anxiety symptoms in adolescents.

Introduction

Anxiety in children and adolescents is a widespread phenomenon (Ollendick, King, & Muris, 2002). In a study of children and adolescents of various nationalities by Ollendick, Yang, King and Dong (1996), the children and adolescents reported no less than 14 fears. In a study among Dutch school-age children, Muris, Merckelbach, Mayer and Prins (2000a) found that childhood fears actually reflect serious anxiety problems in more than 20% of school-age children. Other studies have shown that children and adolescents regularly show (symptoms of) anxiety disorders (McGee et al., 1990).

International epidemiological studies have made clear that 5 to 17% of children and adolescents suffer from an anxiety disorder (Costello & Angold, 1995). Similar findings are reported in literature reviews (Craske, 1997; Bernstein, Borchardt, & Perwien, 1996). One epidemiological study among 780 Dutch adolescents aged 13 to 18 (Verhulst, Van der Ende, Ferdinand, & Kasius, 1997) made use of the Diagnostic Interview Schedule for Children (DISC). The 6-month prevalence of anxiety disorders (in accordance with DSM-III-R criteria) was 10.5%. In 22–38% of this 10.5% there was a correlation between the anxiety disorder and dysfunctional coping skills.

Treffers (2002) provided an overview of prevalence rates for various anxiety disorders based on the overviews of Westenberg, Siebelink, Warmenhoven and Treffers (1999), Treffers (2000) and Verhulst (2001). Separation anxiety disorder is present in 3% of the children and adolescents in the general population. Social phobia is present in 1 to 2%. Specific phobias and generalized anxiety disorder are prevalent in approximately 3% of children and adolescents, while panic disorder is found in less than 1% of adolescents. The revised third edition of the Diagnostic and Statistical Manual of the Mental Disorders (DSM-III-R; American Psychiatric Association, 1987) distinguished three separate categories of anxiety disorders for children and adolescents: separation anxiety disorder, avoidant disorder of childhood or adolescence and overanxious disorder. The DSM's most recent edition, the DSM-IV-TR (American Psychiatric Association, 2000), maintains only separation anxiety disorder as an anxiety disorder specifically affecting children and adolescents. Avoidant disorder has now been classified along with social phobia, while overanxious disorder has been subsumed in generalized anxiety disorder. The other anxiety disorders previously reserved for adults – specific phobias, panic disorder (with or without agoraphobia), obsessive compulsive disorder (OCD), post-traumatic stress disorder (PTSD), anxiety disorder due to medical conditions and anxiety disorder not otherwise specified (NOS) – are now also applied to children and adolescents. In an empirical study, Spence (1997) found strong evidence for the assumption that symptoms of fear in children and adolescents can indeed be clustered in accordance with the DSM-classification of anxiety disorders originally designed for adults.

In order to diagnose anxiety disorders in children and adolescents, researchers can rely on both direct methods such as physiological measurements and indirect means such as diagnostic interviews and questionnaires. Data should be collected using several methods and various informants (Utens & Siebelink, 2002). One of the informants is the adolescent (self-reporting). Non-observable symptoms of fear can be reported by adolescents in questionnaires or semi-structured interviews. Self-report questionnaires can be used as a screening tool to determine whether an adolescent belongs to a group at high risk for developing a specific disorder and may also be used as part of an assessment leading to a full diagnosis (Utens & Siebelink, 2002).

Recently, multi-dimensional questionnaires have been developed which can identify anxiety symptoms in children and adolescents in accordance with the DSM-IV-TR classification; the subscales are directly related to the DSM anxiety disorder symptoms (Muris, Merckelbach, Schmidt, & Mayer, 1999). In a literature review, Myers and Winters (2002) concluded that the Multidimensional Anxiety Scale for Children (MASC) and the Screen for Child Anxiety Related Emotional Disorder (SCARED) were two of the best multi-dimensional questionnaires. They praised both questionnaires

for their clear constructs, adequate psychometric characteristics, statistical power in relation to depression and other internalized problems, responses that could also be used to measure treatment effect and structure that allows for combining parent and child responses (Myers & Winters, 2002).

This study examined whether the SCARED has a five-factor structure for adolescents in general and for gender, age and ethnicity in particular. In opting to study SCARED, we have chosen a measuring tool that is also used in international studies and therefore is suitable for large-scale comparative studies.

The SCARED is a self-report questionnaire consisting originally of 38 items related to five distinct subscales for anxiety (Birmaher et al., 1997). Four of these scales correspond to the DSM-defined anxiety disorders; panic disorder (PD), social phobia (SP), generalized anxiety disorder (GAD) and separation anxiety disorder (SAD). The fifth subscale is school phobia (school avoidance), which Birmaher et al. (1997) classified as a separate childhood anxiety disorder (Muris, Steerneman, & Brinkman, 2000c). The DSM classification of psychological disorders reflects the extent to which experts have reached agreement on the (most fitting combinations of) diagnostic criteria (American Psychiatric Association, 2000). Agreement is based on empirical findings. Strictly speaking, there is no clear theoretical basis for the five-factor model of fear. In international studies, however, the concept of a general measure of fear has generally been replaced by a division into dimensions based on the internationally recognized classification of mental disorders according to the DSM.

In a study among school-age children, Muris et al. (2000a) compared the SCARED to the anxiety disorder section of the Diagnostic Interview Schedule for Children (ADIS-C). This showed that the SCARED is sufficiently sensitive and specific to identify anxiety disorders.

Since it was first published (Birmaher et al., 1997) the questionnaire has been revised several times. Birmaher et al. (1999) added three items to aid identification of social phobia. Research among children and adolescents from a clinical population showed that the five-factor model seemed to best fit these data. Muris et al. (1999b) translated the SCARED into Dutch and made three changes. Their first change was to add the school avoidance items to the separation anxiety disorder subscale, in line with DSM-IV-TR. Their second change was to include 15 new items that would enable them to distinguish between various types of phobias. Their third change consisted of adding 13 new items aimed at identifying the symptoms of obsessive compulsive disorder, post-traumatic stress disorder and acute stress disorder. The revised SCARED (SCARED-R) consists of 66 items intended to measure the symptoms of all DSM-defined anxiety disorders in children and adolescents (Muris et al., 2000a). There appeared to be only one strong factor present. For the original 38-item SCARED, the five-factor structure remained intact in the study among school children.

Research by Birmaher et al. (1997) and Muris et al. (1999, 2000a) supported the premise that the original 38-item SCARED measures the five dimensions of anxiety. The study was based on explorative factor analyses. However, no confirmative factor analyses were carried out for various age and gender groups. This is an important omission since international studies have shown that age and gender are co-determinants of the development of anxiety symptoms in children and adolescents. Cohen et al. (1993) have shown that girls are at a higher risk for developing anxiety disorders than boys. Age also plays an important role in the development of anxiety disorders. Separation anxiety disorder decreased as adolescents get older (Cohen et al., 1993), while symptoms of generalized anxiety disorder (Rapee, 1991) and social phobia (Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996) tend to increase in adolescence.

With the exception of Muris et al. (1999b) the studies were conducted on a clinical population (Birmaher et al., 1997, 1999). This is essential for validating a scale. However, since it has become clear that the onset of the development of anxiety disorders in children and adolescents takes place in the wake of fears that are related to certain developmental stages, studies among the general population will also be necessary. Research into psychometric characteristics might not only provide a general factor analysis of the general population, but could also reveal potential differences in age, gender and ethnicity. In a recent study, Boyd, Ginsburg, Lambert, Cooley and Campbell (2003) noted that the random samples taken by Birmaher et al. (1997, 1999) and Muris et al. (1999b) are comprised primarily of white children (Birmaher et al., 1997, 82%; Birmaher et al., 1999, 71%; Muris et al., 1999b, 95%). Boyd et al. (2003) wondered whether these studies would be representative of other ethnic groups, in particular of African Americans. They studied 111 African-American adolescents (aged 12 to 19) and found that a three-factor solution better fitted the data than a five-factor model. The first study that Birmaher et al. (1997) conducted showed that adolescents from ethnic minorities did not score differently from European Americans. The study did not explore whether the five-factor structure was a good fit for the sample adolescents from ethnic minorities.

In light of the omissions in the literature identified above, this study has two objectives. The first goal is to establish whether the SCARED has a five-factor structure for adolescents. Specifically, the study will explore whether the SCARED has a five-factor structure for male and female adolescents, for early adolescents (10–13 years old) and middle adolescents (14–18 years old) and for ethnically Dutch adolescents and adolescents with a different ethnic background. The second objective is supplementary to the factor analyses and is aimed at identifying possible differences in scores on the SCARED between the various groups.

Method

Subjects and instruments

In 2001, 1,521 adolescents participated in this study. These adolescents came from 12 different Dutch junior high and high schools in the Utrecht province of the Netherlands. The data collected for this study is a subsample of a larger, ongoing research study of Dutch adolescent adolescents and their families, entitled CONflict And Management Of RElationships (CONAMORE). Only those adolescents who had completed the SCARED questionnaire (the original 38-item version [available on request from the first author]) were included in this study. Of the initial 1,521 adolescents, 181 (12%) adolescents turned in incomplete questionnaires and therefore were excluded from further analyses. The excluded adolescent group did not significantly differ from the researched group (1,340 adolescents) in terms of age, gender, and ethnic background.

The adolescent population was composed of 645 (48.1%) males and 695 (51.9%) females. The age of the adolescents ranged from 10 to 18 years ($M = 14.39$; $SD = 2.20$). The early adolescent group of ages 10 to 13 years was composed of 684 adolescents (51%), with an average age of 12.4 years ($SD = 0.51$). The mid-adolescent group of ages 14 to 18 years was composed of 656 adolescents (49%), with an average age of 16.5 years (SD = 0.85). The early and mid-adolescent groups were defined by a median split.

A majority of the group were Dutch ($n = 1,115$; 83.2%). The rest of the group ($n = 225$; 16.8%) was composed of ethnic minorities not of Dutch descent. These adolescents came from non-Western countries, such as Morocco, Turkey, Surinam, and the Netherlands Antilles. Our percentage of ethnic minorities closely reflects that of the general Dutch population; in 2003, it was estimated that 15% of the youths in the Netherlands (ages 0–25 years) came from non-Western countries (Netherlands Central Bureau of Statistics, 2003).

The original 38-item SCARED questionnaire was used in this study. The adolescent rated each symptom on a 3-point scale: (0) *almost never*, (1) *sometimes*, (2) *often*. The subscales of the questionnaire are PD (13 items; score range, 0–26), GAD (nine items; score range, 0–18), SAD (eight items; score range, 0–16), SP (four items; score range, 0–8), and SA (four items; score range, 0–8). The internal consistency of the SCARED subscales was good (Cronbach's alpha: 0.93 for the total score; subscales: PD = 0.91, GAD = 0.86, SP = 0.82, SA = 0.65, SAD = 0.61).

Data collection procedures

The adolescents that participated in this study completed the questionnaire, which takes approximately 15 minutes, during the homeroom study period.

Before the study, both adolescents and their parents received written information and, if the adolescent elected to participate, were required to provide written informed

consent; less than 1% chose not to participate. Written informed consent was also obtained for all the participating schools. Adolescents who were absent on the day of testing were not assessed. Verbal instructions were given just before the testing to complement the written instructions ("A number of statements which refer to being afraid are given below. Read each statement and indicate how frequently you have that symptom: almost never, sometimes or often. There are no right or wrong answers. Honestly say how you generally feel. Please don't skip any statements.") printed above each questionnaire. At the end of the homeroom study period, the questionnaires were collected by the research assistant and returned to the researchers.

Data analysis

To test the factor structure of the SCARED, both a one-factor model and a five-factor model were tested in confirmatory factor analyses. For these analyses, the structural equation modeling program AMOS was used (Arbuckle & Wothke, 1999). As the data did not justify the assumption of multivariate normality, the estimation method of unweighted least squares was employed. In this approach, the fit of the models is evaluated by means of three indices, proposed by Jöreskog and Sörbom (1989): (a) goodness-of-fit index (a value of ≥ 0.95 represents a good fit), (b) adjusted goodness-of-fit index (a value of ≥ 0.95 represents a good fit), and (c) root mean square residual (a value of ≤ 0.05 represents a good fit).

After determining which model best represented the data in the total sample and various subsamples, possible gender, age, and ethnic background score differences were evaluated by multivariate analysis of variance tests (with Bonferroni type adjustment).

Results

Confirmatory factor analysis

As can be seen from the results reported in Table 2.1, both models fit well. However, the five-factor model had a significantly better fit than the one-factor model ($\Delta\chi^2$ = 147.82, Δdf = 10, $p < .001$). Because the five-factor model had the best fit and can be related to the theoretical assumptions of the SCARED, the fit of this model was further investigated for various gender, age, and ethnic background subsamples. The results of these separate confirmatory factor analyses are also reported in Table 2.1. The standardized regression weights of the five-correlated factors model for the entire adolescent population are presented in Table 2.2.

Table 2.1 Model fit indices for the one-factor model and the five-factor model of the Screen for Child Anxiety Related Emotional Disorders

		Model fit indices		
	N	GFI	AGFI	RMR
One-factor model				
Total sample	1,340	0.962	0.957	0.020
Five-factor model				
Total sample	1,340	0.976	0.972	0.016
Males	645	0.980	0.978	0.016
Females	695	0.970	0.966	0.017
Early adolescents	684	0.974	0.970	0.017
Males	354	0.979	0.977	0.018
Females	330	0.958	0.952	0.018
Mid-adolescents	656	0.971	0.967	0.017
Males	291	0.970	0.966	0.017
Females	365	0.966	0.962	0.019
Dutch	1,115	0.974	0.970	0.015
Ethnic minority	225	0.972	0.969	0.025

Note. GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index; RMR, root mean square residual.

Analysis of variance

For the multivariate analysis of variance, attention was first given to the main effects that gender, age, and ethnic background had on the adolescent SCARED subscale scores. It was found that each group was significant (gender: $F_{5,1334} = 19.07$, $p < .001$; age: $F_{5,1334} = 19.74$, $p < .001$; ethnic background: $F_{5,1334} = 7.93$, $p < .001$). Examination of the two- and three-way interactions of these three groups yielded insignificant F values, and, therefore, they were not investigated further in the subsequent analyses.

Score differences between the male and female adolescents

For the males and females, two subscales differed significantly on the GAD ($F_{1,1338} = 33.59$, $p < .001$) and the SP ($F_{1,1338} = 42.16$, $p < .001$) subscales. The females scored higher on these subscales than the males.

Score differences between the early and mid-adolescent age groups

Comparison of the early and mid-adolescent age groups revealed significant score differences for the GAD ($F_{1,1338} = 12.96$, $p < .001$), SAD ($F_{1,1338} = 16.95$, $p < .001$), and the SA ($F_{1,1338} = 4.31$, $p < .05$) subscales. The early adolescents scored higher than the mid-adolescents on the SAD subscale. The middle adolescents had higher scores on both the GAD and SA subscales than the early adolescents.

Table 2.2 Standardized regression weights of the five-factor model for the entire adolescent population after confirmatory factor analysis

	Standardized regression weight				
SCARED item	PD	GAD	SAD	SA	SP
Things don't seem real	0.701				
Feeling dizzy	0.691				
Feel like I'm choking	0.685				
Feel weak	0.685				
Going crazy	0.673				
Going to vomit	0.669				
Afraid of a panic attack	0.663				
Going to faint	0.655				
Afraid without a reason	0.649				
Appear nervous	0.617				
Difficulty breathing	0.588				
Sweat a lot	0.539				
Heavy heartbeats	0.451				
Worry if something will happen		0.713			
Worry if I'm as good as others		0.709			
Worry if I do things well		0.696			
Worry about the future		0.684			
Worry too much		0.635			
Worry about the past		0.635			
Worry if I'm liked		0.611			
I'm a nervous type		0.550			
Dreams bad things will happen			0.658		
Bad dreams about parents			0.650		
Worry about sleeping alone			0.633		
Afraid to sleep somewhere else			0.579		
Afraid to be alone			0.563		
Worry about parents			0.518		
Afraid to be away from family			0.487		
Always be with parents			0.329		
Afraid to go to school				0.784	
Worry about going to school				0.734	
Head or stomachaches at school				0.613	
Don't like to go to school				0.465	
Nervous with strangers					0.799
Difficulty talking to strangers					0.746
Shy around strangers					0.720
Dislike being with strangers					0.655

Note. PD, Panic disorder symptoms; GAD, Generalized anxiety disorder symptoms; SAD, Separation anxiety disorder symptoms; SA, School anxiety symptoms; SP, Social phobia symptoms.

Score differences between the Dutch and ethnic minority adolescents

When the Dutch adolescents were compared with the ethnic minority adolescents, it was revealed that they differed on four of the five subscales. These subscales were GAD ($F_{1,1338} = 8.93$, $p < .01$), PD ($F_{1,1338} = 27.81$, $p < .001$), SAD ($F_{1,1338} = 29.24$, $p < .001$), and SA ($F_{1,1338} = 6.34$, $p < .01$). The ethnic minority adolescents scored significantly higher on these four subscales than the Dutch adolescents.

Discussion

Two important findings can be concluded from this study of the SCARED in the general adolescent population. Firstly, the five-factor structure applies to both the general adolescent population and to the gender, age and ethnic distinguished subgroups (male/female, early/middle adolescent, Dutch/other ethnic background). Secondly, the subgroups generally score differently on the SCARED subscales. Below is a discussion of the findings from the confirmative factor analyses and of the differences in SCARED scores of the adolescent subgroups.

Confirmative factor analysis

This study among adolescents has made clear that the SCARED has a five-factor structure; the factors correspond to the five current symptom dimensions of anxiety (Birmaher et al., 1997). The five-factor structure applies to both the general adolescent population and the various subgroups within this study. This finding demonstrates the robustness of the SCARED's five-factor structure.

For the subgroup of Dutch adolescents of a non-Dutch ethnic background, the original five-factor structure was the best fit. Yet Boyd et al. (2003) had found a three-factor structure for African Americans. This difference in findings might be attributable to a discrepancy between the heterogeneity of the African-American subgroup in the American context in Boyd's study and the relative homogeneity of the sample of ethnically non-Dutch adolescents in the Dutch context of our study. It is also possible that the difference in group size ($n = 111$ versus $n = 225$) played a role. These discrepancies make it difficult to compare the two groups of ethnic minorities.

In short, the three-factor structure was found only in a study that used a sample of ethnic minority adolescents that was incomparable to the sample of ethnic adolescents in this study. Because the sample of ethnically non-Dutch adolescents in this study constitutes 16.8% of the entire population in this study, to which the five-factor structure applied, we opted to leave the three-factor structure out of this study entirely.

Gender and age differences

As mentioned before, women scored significantly higher on the GAD and SP subscales than men. This result is in line with studies that have shown that women are at a higher risk for developing symptoms of anxiety disorders in general (Cohen et al., 1993; Craske, 1997), and for developing GAD symptoms in particular (McGee et al., 1990). This finding confirms results from earlier studies in which female adolescents scored higher on SP than male adolescents (Compton, Nelson, & March, 2000). Analyses of differences in scores between early adolescents and middle adolescents show that early adolescents score higher on the SAD subscale, while middle adolescents score higher on the GAD and SA subscales. A study by Cohen et al. (1993) comparing a group of 10- to 13-year olds and a group of 14- to 16-year olds showed that SAD symptoms diminish over time. Similar findings were described by Compton et al. (2000). The middle adolescents' higher scores on the GAD subscales corresponds to the literature that describes GAD as a slow-onset disorder that begins early in life and has a long-term trajectory (Clark, Smith, Neighbors, 1994; Rapee, 2001). The SA scores increase over the course of adolescence (Hansen, Sanders, Massaro, & Last, 1998).

Ethnic differences

Dutch adolescents with a non-Dutch ethnic background scored significantly higher than ethnically Dutch adolescents on four out of the five SCARED subscales (Table 2.3). The results of previous studies are divergent. A specific comparison of a large sample of indigenous Dutch adolescents and Dutch adolescents of Turkish descent (Janssen et al., 2004) showed higher scores for the Turkish-Dutch adolescents on the anxious/

Table 2.3 Mean Screen for Child Anxiety Related Emotional Disorders scores and standard deviations for the adolescent gender, age, and ethnic groups

	Mean (*SD*) [a]					
SCARED subscale	Males	Females	Early adolescents	Mid-adolescents	Dutch	Ethnic minorities
PD	15.99 (4.34)	16.06 (3.72)	16.14 (4.22)	15.92 (3.82)	**15.77 (3.72)**	**17.31 (5.14)**
GAD	**11.82 (3.45)**	**12.95 (3.65)**	**12.06 (3.49)**	**12.77 (3.68)**	**12.28 (3.52)**	**13.06 (3.94)**
SAD	10.39 (2.77)	10.58 (2.36)	**10.77 (2.71)**	**10.19 (2.37)**	**10.32 (2.38)**	**11.32 (3.23)**
SA	5.11 (1.52)	5.08 (1.58)	**5.01 (1.52)**	**5.18 (1.57)**	**5.05 (1.49)**	**5.33 (1.77)**
SP	**5.69 (1.89)**	**6.42 (2.15)**	6.00 (1.98)	6.14 (2.15)	6.04 (2.07)	6.24 (2.04)

Note. SCARED, Screen for Child Anxiety Related Emotional Disorders.
[a] Significant results are noted in bold; $p < .05$.

depressed scale, measured with the Youth Self Report (YSR; Verhulst & Van der Ende, 2004). A study of self-reported problem perception by Dutch and Moroccan-Dutch adolescents using the YSR found no significant difference on the anxious/depressed scale (Stevens et al., 2003).

The majority of studies in the USA focusing on differences between European Americans and ethnic minorities such as African Americans and Hispanic Americans were carried out among clinical populations. On the GAD scores, ethnic minorities reported higher anxiety than European Americans (Glover, Pumariega, Holzer, Wise, & Rodriguez, 1999; Last & Perrin, 1993; Silverman, La Greca, & Wasserstein, 1995; Wachtel, Rodriguez, Geffken, Graham, & Turner, 1994; Weems, Hayward, Killen, & Taylor, 2002). On the SA scores, one study found that African Americans scored higher than European Americans (Compton et al., 2000), while another study found no difference (Beidel, Turner, & Morris 1999). The same goes for the SAD scores: Compton et al. (2000) concluded that European Americans reported more SAD symptoms than African Americans, while Ginsburg and Silverman (1996) established that Hispanic Americans reported more SAD symptoms than European Americans. These divergent results complicate the picture concerning SAD. European Americans report more SA than African Americans (Last & Perrin, 1993), but score the same as Hispanic Americans (Ginsberg & Silverman, 1996). Finally, European Americans report more PD symptoms than Hispanic Americans (Weems et al., 2002). Although there seems to be a trend in which minorities report more anxiety symptoms than European Americans, the results for the symptoms of specific anxiety disorders are so divergent that no definitive conclusions can be drawn.

Limitations

The first limitation of this study is the use of cross-sectional data. In order to further explore the stability of the SCARED for various age, gender and ethnic groups of adolescents, longitudinal studies are required. Similarly, studies into the continuity of the dimensions and the symptoms in the various age samples require a longitudinal design.

A second limitation is that, in general, this study reveals slight effect sizes. This can be explained by the small differences within the general population. However, Prentice and Miller (1992) concluded that small effects can be important when they are significant. Several data in this study are new and significant with regard to the psychometric characteristics of the SCARED.

Thirdly, this study is based on adolescents' self-reported anxiety symptoms. Although it is generally accepted that adolescents are the main informants on anxiety symptoms (Stallings & March, 1995), a structured interview such as the ADIS-C (Comer & Kendall, 2004) could help illuminate the relationship between self-report

and actual clinical diagnosis.

Finally, it is crucial that the various ethnic minorities have been treated as one homogeneous group. Analyzing the various ethnic groups with CFA was not feasible due to the small sample size of the individual groups.

Clinical implications

The CFA and the differences in scores between the subgroups demonstrate the usefulness of the SCARED as a Dutch-language tool for measuring anxiety dimensions in research and clinical practice. Recent studies have shown that the SCARED subscales are indeed useful to predict anxiety disorders in a clinical population (Muris, Dreessen, Bögels, Weckx, & Van Melick, 2004).

Therefore, this multi-dimensional, DSM-based anxiety questionnaire certainly seems to represent added value to the tools available to clinical and research psychologists. The differences in age and gender groups expected on the basis of theory and confirmed in this study can potentially be used in therapy research. An example of this would be the use of the SCARED as an instrument for measuring the treatment effect of cognitive behavioral therapy in adolescents with anxiety disorders (Muris, Merckelbach, Gadet, Schmidt, & Tierney, 1999).

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The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms

Wijsbroek, S. A. M., Hale III, W. W., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2011). The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms. *European Child and Adolescent Psychiatry*, *20*, 361-371.

Abstract

This study examined the direction of effects and age and sex differences between adolescents' perceptions of parental behavioral and psychological control and adolescents' self-reports of generalized anxiety disorder (GAD) and separation anxiety disorder (SAD) symptoms. The study focused on 1,313 Dutch adolescents (early-to-middle cohort $n = 923$, 70.3%; middle-to-late cohort $n = 390$, 29.7%) from the general population. A multi-group, structural equation model was employed to analyze the direction of the effects between behavioral control, psychological control and GAD and SAD symptoms for the adolescent cohorts. The current study demonstrated that a unidirectional child effect model of the adolescents' GAD and SAD symptoms predicting parental control best described the data. In addition, adolescent GAD and SAD symptoms were stronger and more systematically related to psychological control than to behavioral control. With regard to age-sex differences, anxiety symptoms almost systematically predicted parental control over time for the early adolescent boys, whereas no significant differences were found between the late adolescent boys and girls.

Introduction

In an attempt to better understand the effects parenting practice characteristics have on the development and maintenance of adolescent anxiety, several theoretical models have been proposed (e.g., Ballash et al., 2006; Chorpita & Barlow, 1998; Rapee, 2001; Rubin & Mills, 1991; Verhulst et al., 1997) that try to explain the findings of recent studies that indicate that parenting characteristics differ between families with high levels of anxiety and non-anxious families (Bögels & Brechman-Toussaint, 2006; Cobham, Dadds, & Spence, 1999; Dadds et al., 1996; Woodruff-Borden et al., 2002). Parental control is considered one of the most important of these parenting characteristics (Wood et al., 2003).

Literature reviews of empirical studies on parental control have demonstrated that parental controlling behaviors and adolescent anxiety are significantly related to one another (Bögels & Brechman-Toussaint, 2006; Pettit et al., 2001; Rapee, 1997). Studies of parents with anxious children and adolescents have shown that these parents use significant more controlling behaviors; however, most of these previous studies have been cross-sectional as opposed to longitudinal. Therefore, one of the most important questions remains the direction of effects parental control and child anxiety have on one another (Bögels & Brechman-Toussaint, 2006; McLeod, Wood, & Weisz, 2007). Knowledge as to the direction of effects is needed in the development of evidence-based interventions (Bögels & Brechman-Toussaint, 2006).

In a review of the literature of the direction of effects in parent–adolescent interactions, Branje, Hale and Meeus (2008) discussed three of the most prominent models (Lollis & Kuczynski, 1997). The first model, the parent effect model, assumes that specific parental behavior has a major influence on individual adolescent problem behavior; in other words, parental control eliciting adolescent anxiety. It is suggested that severe parental control leads to child perceptions of the environment as uncontrollable, resulting in non-adequate coping behavior and anxiety in children and adolescents and preventing the adolescent from acquiring developmental-appropriate behaviors (Barlow, 2002; Bögels & Brechman-Toussaint, 2006; Chorpita, Brown, & Barlow, 1998; Dadds, 2002; Rapee, 2001). The adolescent remains dependent of his or her parents, which can lead to anxiety disorder symptoms such as separation anxiety disorder (SAD) symptoms (Barlow, 2002; Wood et al., 2003).

The second model, the child effect model, supposes that a child's characteristics are influential in shaping parental behavior (Bell & Chapman, 1986; Belsky, 1984; Kerr & Stattin, 2003; Patterson, 1982). According to this model, adolescent anxiety elicits severe parental control. An adolescent with a temperament characterized by high arousal and emotionality may elicit increased parental control and over-involvement as the parents attempt to reduce the adolescent's stress while adapting to the sensitivity of their adolescent in specific situations. Conversely, negative emotional appeals from the anxious adolescent can lead to parents becoming less sensitive and more demanding in accommodating their child's demands (Bögels & Brechman-Toussaint, 2006; Dadds, 2002; Rapee, 2001; Rubin & Mills, 1991).

The final model, the reciprocal effects model, emphasizes the bi-directionality of effects in which children and parents influence each other and contribute to each other's individual developmental outcomes (Bell & Chapman, 1986; Lollis & Kuczynski, 1997; Sameroff, 1983). According to this model, severe parental control and adolescent anxiety reciprocally affect each other, adolescent anxiety eliciting changes in parental control and parental control influencing adolescent anxiety (Parker, 1993).

With respect to the direction of the effects of parental control on adolescent anxiety and/or vice versa, no clearcut consensus has yet been reached (Ballash et al., 2006; Barber, Stolz, & Olsen, 2005; McLeod, Wood, & Weisz, 2007; Parker, 1993; Rapee, 1991). Therefore, in light of the aforementioned models, the purpose of the current study is to explore the direction of effects between perceived parental control and adolescent anxiety disorder symptoms.

The parenting literature differentiates parental control into two constructs: parental behavioral control and parental psychological control (Ballash et al., 2006; Barber, 1996). Research demonstrates that each construct has its own distinct impact on child outcomes (Barber, Olsen, & Shagle, 1994; Smetana & Daddis, 2002).

However, the differentiation of behavioral control and psychological control has been criticized. Recent studies and literature reviews have noted that behavioral control and psychological control and emotional and behavioral outcomes cannot be clearly distinguished (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010; Wang, Pomerantz, & Chen, 2007). It is suggested to define parental control as two dimensions of parenting: parental control and parental structure. Parental control is characterized by pressure, intrusiveness and dominance of the parents in relation to the adolescent' feelings, thoughts and behaviors. Parental structure is characterized by the organization of the adolescent environment to facilitate the adolescent's competence (Grolnick & Pomerantz, 2009; Wang, Pomerantz, & Chen, 2007).

Nevertheless, in a very recent study by Soenens and Vansteenkiste (2010), the authors argue for the continuation of the differentiation of parental behavioral control and parental psychological control. They specifically argue that one form of parental control refers to the attempts of parents to regulate and structure the behavior of their child, in other words, parental behavioral control. They go on to suggest that this form of parental control is different from the second form of parental control that "… refer[s] to a controlling, pressuring or coercive parenting environment that controls children's feelings, thinking, and behaving" (Soenens & Vansteenkiste, 2010, p. 86), in other words, parental psychological control.

In light of the aforementioned, it is clear that this debate has been ongoing and has not yet come to a definitive conclusion. Since the goal of this study is to explore the direction of effects between perceived parental control and adolescent anxiety disorder symptoms with respect to the three aforementioned effect models, we believe using the more traditional approach of measuring parental control in light of behavioral control and psychological control will allow us to examine possible similarities and differences between the two.

Mechanisms explaining the relationship between adolescent anxiety and parental control have been based on models that characterized the role of personal control and self-efficacy as determinants of anxiety (e.g., Chorpita & Barlow, 1998; McLeod, Wood, & Weisz, 2007). Different expressions of parental controlling behaviors (i.e., behavioral control and psychological control) result in the adolescent not mastering developmental tasks required to equip the adolescent to sufficiently deal with anxiety symptoms common to adolescent development. For example, parental behavioral control can lead the adolescent to a weak sense of self-efficacy, which in turn can lead to an increased vulnerability to developing anxiety disorder symptoms (Chorpita & Barlow, 1998; McLeod, Wood, & Weisz, 2007), whereas parental psychological control can lead adolescents to develop a cognitive bias with perceptions of events as out of the adolescent's control, which, in turn, can also lead to an increased vulnerability to anxiety disorder symptoms (Woodruff-Borden et al., 2002).

In respect to the definition of behavioral control, Soenens and Vansteenkiste (2010) criticized the term 'control' in behavioral control, since the term 'control' can be understood in two different ways. In the first place, control can refer to the attempts of parents to regulate and structure the behavior of their child. Secondly, control can refer to a controlling parenting environment (Soenens & Vansteenkiste, 2010, p. 86). In the current study, parental behavioral control is defined as the adolescent's perception of both the provision of regulation and structuring and a controlling and pressuring parenting environment (Soenens & Vansteenkiste, 2010). The exploration of the relationship between parental behavioral control and adolescent anxiety is based on the suggestion that, on the one hand, the adolescent's daily life in a controlling and pressuring environment (Soenens & Vansteenkiste, 2010) may contribute to adolescents' perceptions of the environment as uncontrollable and prevent growth of developmental-appropriate behaviors (Barlow, 2002; Bögels & Brechman-Toussaint, 2006; Chorpita & Barlow, 1998; Dadds, 2002; Riskind & Williams, 2005). On the other hand, adolescent anxiety may elicit parental behavioral control in which the parents take on more decisions for their adolescent to provide safety and predictability for the adolescent (McLeod, Wood, & Weisz, 2007). This environment, created by parental behavioral control, can lead the adolescent to a weak sense of self-efficacy, which in turn can lead to an increased vulnerability to the development of anxiety disorder symptoms.

It should also be noted that in this study parental psychological control is defined as the intrusive and manipulative behaviors of parents (i.e., influence thoughts, feelings and attachment, associated with guilt induction and shaming) that hamper the development of independence and autonomy of their adolescents (Barber, 1996; Barber & Harmon, 2002; Barber, Olsen, & Shagle, 1994; Bögels & Brechman-Toussaint, 2006). Additionally, as mentioned, parental psychological control can lead adolescents to develop a cognitive bias of events as out of their control, which in turn can also lead to an increased vulnerability to anxiety disorder symptoms.

Perceived parental psychological control and adolescent depressive disorder symptoms as defined by the DSM-IV-TR as internalizing problem behavior demonstrated a positive relationship in recent longitudinal research (Soenens et al., 2008; Soenens et al., 2005). However, the majority of the aforementioned studies of parental control and adolescent anxiety as internalizing problem behavior have focused on general adolescent anxiety symptoms, as opposed to specific DSM-IV-TR anxiety disorder symptoms. Hence, longitudinal investigation of parental behavioral control and parental psychological control associated with specific types of DSM-IV-TR adolescent anxiety disorder symptoms (American Psychiatric Association, 2000) is presently lacking and is needed in order to better illuminate the relationship between perceived parental control and specific adolescent anxiety disorder symptoms. Of these specific adolescent anxiety disorders, two DSM-IV-TR anxiety disorders are specifically

related to problematic parenting: generalized anxiety disorder (GAD) (Hale, Engels, & Meeus, 2006; Muris & Merckelbach, 1998; Rapee, 1997) and SAD (Cronk et al., 2004).

GAD is one of the most commonly occurring adolescent anxiety disorders (Costello et al., 2003; Rapee, 1991; Verhulst et al., 1997; Weems & Costa, 2005; Weems & Stickle, 2005) characterized by frequent, excessive worry (American Psychiatric Association, 2000; Andrews et al., 2010). Social-evaluative concerns are at the center of adolescent GAD worry symptoms (Hudson & Rapee, 2004; Weems, Silverman, & La Greca, 2000; Westenberg et al., 2004) and interpersonal problems with parents were found to be related to adolescent GAD symptoms (Hale, Engels, & Meeus, 2006; Muris et al., 2000; Muris et al., 2001; Stattin & Kerr, 2000).

SAD as a syndrome is characterized by non-age appropriate and excessive anxiety regarding separation from caregivers or from home (American Psychiatric Association, 2000). This means that an adolescent remains extremely dependent on his or her parents for his daily functioning in a phase in which growing independence is expected (Weems, Silverman, & La Greca, 2000). Extreme distress occurs when the adolescent is separated from attached persons (Cronk et al., 2004).

Positive associations between perceived parental psychological control and GAD symptoms have been found in cross-sectional studies of pre-adolescents (Muris & Merckelbach, 1998) and adolescents (Hale, Engels, & Meeus, 2006; Rapee, 1997). With respect to the association between perceived parental behavioral control and psychological control and adolescent SAD, to our knowledge no empirical studies have yet been conducted.

As noted, the goal of the present study is to investigate the direction of effects between perceived parental behavioral and psychological control and perceived adolescent GAD and SAD symptoms. Since consensus has not yet been formed as to which of the three models best explains parental behavioral and psychological control and adolescent GAD and SAD anxiety symptoms, no specific hypothesis of the direction of effects can be made. For the current study, age and gender differences between parental behavioral and psychological control and GAD and SAD symptoms will be explored. However, since parental behavioral and psychological control and adolescent GAD and SAD symptoms have not been studied together in one and the same research design in the past, no specific hypotheses can be formulated.

Method

Participants

The data for this study were collected as part of a largescale research project *Con*flict *A*nd *M*anagement *Of Re*lationships (CONAMORE; Meeus et al., 2004). The longitudinal

sample consisted of 1,313 participants divided into an early-to-middle adolescent cohort (n = 923; 70.3%), who were 12.4 years of age (SD = 0.59) on average, and a middle-to-late adolescent cohort (n = 390; 29.7%) with an average age of 16.7 years (SD = 0.80) during the first wave of measurement. Most participants identified themselves as being Dutch (84.9%). Smaller proportions of participants identified themselves as belonging to various non-Western ethnic groups (15.1%). Most participants lived with both parents (84.9%), a minority lived with their mother (10.7%), father (1.4%) or someone else (2.9%). Regarding educational level, around 60% of the participants were in pre-university or in preparatory higher professional education, and around 40% were in preparatory secondary vocational education. The early-to-middle adolescent cohort consisted of 468 boys (50.7%) and 455 girls (49.3%), and the middle-to-late adolescent cohort consisted of 169 boys (43.3%) and 221 girls (56.7%). The cohorts did not differ in home situation, ethnic composition or educational level. Sample attrition was 1.2% across the three waves with a 2-year interval between each of the waves: in waves 1, 2 and 3, the number of participants was 1,313, 1,293 and 1,275, respectively. Missing indicator item values were estimated in SPSS, using the EM procedure.

Procedure

The adolescents who participated in this study completed the questionnaires during the homeroom study period, which lasted for an hour. Adolescents were informed of the research foregoing to this study and were given the opportunity not to participate. Prior to the study, both adolescents and parents received written information and, if the adolescent chose to participate, were required to provide written informed consent. Verbal instructions as to how to fill in the questionnaires were given to the adolescents by the research assistants just prior to the testing to complement the written instructions printed above each questionnaire. At the end of the homeroom study period, the research assistants collected the questionnaires. These assistants additionally conducted the data entry so as to insure that the data remained anonymous to the researcher.

Measures

Perceived behavioral control and psychological control

To measure perceived behavioral and psychological control, use was made of the scales 'behavioral control' and 'psychological control' of the Children's Reports of Parental Behaviour Inventory (CRPBI; Kawash & Clewes, 1988; Schaefer, 1965a, 1965b; Schwarz, Barton-Henry, & Pruzinsky, 1985). Both control scales of the CRPBI consist of ten items for each scale, with scores ranging from 0 (*never*) to 4 (*always*). Example questions are: "My parents are very strict with me" (behavioral control) and: "My parents do

not look at me if I disappointed them" (psychological control). Confirmatory factor analyses demonstrated an acceptable fit with the data of the entire adolescent sample for behavioral control ($\chi^2/df = 3.33$, GFI = 0.98, CFI = 0.99, *RMSEA* = 0.04) as well as for psychological control ($\chi^2/df = 3.65$, GFI = 0.97, CFI = 0.98, *RMSEA* = 0.05). In this study, Cronbach's alphas across the waves were 0.65–0.77 for the behavioral control scale and 0.86 and 0.87 for the psychological control scale.

GAD symptoms and SAD symptoms

To measure GAD and SAD symptom scores, the GAD and the SAD subscales of the Screen for Child Anxiety Related Emotional Disorders (SCARED) were used. The SCARED is a self-report questionnaire, designed for children and adolescents, which measures the occurrence of anxiety disorder symptoms on a three-point Likert scale: 1 (*almost never*), 2 (*sometimes*), 3 (*often*) (Birhamer et al., 1999; Birhamer et al., 1997). The GAD symptom subscale consists of nine items. An example item for a GAD symptom is: "I worry about other people liking me". The SAD symptom subscale consists of eight items. An example item for a SAD symptom is: "I follow my mother or father wherever they go." Reliability (Myers & Winters, 2002) and construct validity of the SCARED are strong (Hale et al., 2005). The GAD and SAD scales both have acceptable fits with the data of the entire sample tested in confirmatory factor analyses (GAD: $\chi^2/df = 4.03$, CFI = 0.99, *RMSEA* = 0.06; SAD: $\chi^2/df = 3.17$, CFI = 0.98, RMSEA = 0.05). Cronbach's alphas for the scale GAD across the three waves ranged from 0.82 to 0.86 and Cronbach's alphas for the scale SAD ranged from 0.67 to 0.77.

Data analysis

In this study, a structural equation model based on maximum likelihood estimation was employed (AMOS; Arbuckle & Wothke, 2006; Bollen, 1989) to examine the relationship between parental behavioral and psychological control and adolescent GAD symptoms over time, as well as parental behavioral and psychological control and adolescent SAD symptoms over time. The model fits were evaluated by means of three indices: the comparative fit index (CFI: a value of 0.95 or greater represents a good fit), the normed fit index (NFI: a value of 0.95 or greater represents a good fit) and the root mean square error of approximation (RMSEA: a value of 0.05 or less represents a good fit and a value of 0.08 or less is an acceptable fit) (Kline, 2010).

Analyses of the entire adolescent group and multi-group analysis were then conducted to explore the effects of age and sex of the adolescents. The four groups of the multi-group analysis were early adolescent boys ($n = 468$), early adolescent girls ($n = 455$), late adolescent boys ($n = 169$) and late adolescent girls ($n = 221$). Four different models were examined. First, a restricted model was tested in which all the estimated parameters were required to be equal across the four groups. Next, a second model was tested in which the

estimated parameters were allowed to differ for the different age groups (i. e., early and late adolescents), and a third model in which the estimated parameters were allowed to differ for the sex groups. Finally, a fourth non-restricted model was tested in which all the parameters were allowed to differ across both age and sex cohorts. While structural equation modeling produces many different parameters, only the significant cross paths related to the study's examination of the effect models are discussed in "Results".

Results

Descriptives

The means and standard deviations of the entire adolescent group and the adolescent age and sex cohorts for perceived parental behavioral and psychological control and adolescent GAD and SAD symptoms are presented in Table 3.1. In general, the mean scores of perceived parental behavioral and psychological control decreased systematically over time. For early adolescent girls, only the mean scores of parental behavioral control increased over all waves.

Table 3.1 Means and *SD* of the total adolescent group and age and sex groups for perceived behavioral control, perceived psychological control, perceived adolescent generalized anxiety disorder (GAD) symptoms and adolescent separation anxiety disorder (SAD) symptoms

	Entire adolescent group (N = 1,313) *M* (*SD*)	Early adolescent boys (n = 468) *M* (*SD*)	Early adolescent girls (n = 455) *M* (*SD*)	Late adolescent boys (n = 169) *M* (*SD*)	Late adolescent girls (n = 221) *M* (*SD*)
Behavioral control T1	3.02 (0.57)	3.04 (0.49)	3.07 (0.51)	2.88 (0.61)	2.96 (0.74)
Behavioral control T2	2.95 (0.57)	3.01 (0.47)	3.08 (0.56)	2.73 (0.61)	2.70 (0.64)
Behavioral control T3	2.90 (0.66)	2.96 (0.59)	3.15 (0.59)	2.53 (0.64)	2.54 (0.67)
Psychological control T1	2.24 (0.73)	2.39 (0.78)	2.07 (0.66)	2.43 (0.66)	2.11 (0.72)
Psychological control T2	2.10 (0.66)	2.31 (0.66)	2.01 (0.60)	2.12 (0.64)	1.86 (0.64)
Psychological control T3	2.01 (0.64)	2.13 (0.62)	1.99 (0.65)	1.99 (0.61)	1.80 (0.64)
GAD symptoms T1	1.38 (0.39)	1.30 (0.37)	1.40 (0.38)	1.30 (0.35)	1.54 (0.44)
GAD symptoms T2	1.38 (0.40)	1.29 (0.35)	1.42 (0.42)	1.32 (0.33)	1.54 (0.44)
GAD symptoms T3	1.38 (0.41)	1.24 (0.31)	1.46 (0.43)	1.28 (0.33)	1.57 (0.48)
SAD symptoms T1	1.32 (0.31)	1.32 (0.33)	1.37 (0.31)	1.25 (0.30)	1.28 (0.25)
SAD symptoms T2	1.31 (0.29)	1.31 (0.31)	1.35 (0.30)	1.18 (0.18)	1.30 (0.24)
SAD symptoms T3	1.24 (0.27)	1.24 (0.28)	1.28 (0.27)	1.15 (0.21)	1.24 (0.24)

The mean scores of GAD symptoms were stable over time for the entire group. GAD mean scores decreased for early adolescent boys over all waves, increased for the late adolescent boys from the first to the third wave and decreased from the third to the fifth wave. GAD mean scores increased over all waves for early adolescent girls. For late adolescent girls, the mean scores of GAD symptoms were stable from the first to the third wave and increased from the third to the fifth wave. The mean scores of SAD symptoms decreased over time for the entire group: the early adolescent boys, early adolescent girls and late adolescent boys. For the late adolescent girls, only the mean scores of SAD symptoms increased form the first to the third wave and decreased from the third to the fifth wave.

Initial correlations, correlations of the stability paths and correlations of the cross paths have been computed for the total adolescent group and age and sex groups and are presented in Table 3.2.

Total group and multi-group SEM analyses

The model tested for the total adolescent group provided a good fit to the data for perceived parental behavioral control and adolescent GAD symptoms, χ^2/df = 1.12, NFI = 1.00, CFI = 1.00, *RMSEA* = 0.01, and perceived parental behavioral control and adolescent SAD symptoms: χ^2/df = 4.46, NFI = 0.99, CFI = 1.00, *RMSEA* = 0.05. The model provided an acceptable fit to the data for perceived parental psychological control and adolescent GAD symptoms: χ^2/df = 7.73, NFI = 0.99, CFI = 0.99, *RMSEA* = 0.07; and perceived parental psychological control and adolescent SAD symptoms: χ^2/df = 7.50, NFI = 0.99, CFI = 0.99, *RMSEA* = 0.07.

A non-restricted model that allowed for age and sex differences provided the best fit to the data. Specifically, the model fits for perceived parental behavioral control and adolescent GAD symptoms were χ^2/df = 0.77, CFI = 1.00, NFI = 1.00, *RMSEA* = 0.00; perceived parental behavioral control and adolescent SAD symptoms were χ^2/df = 0.85, CFI = 1.00, NFI = 0.99; *RMSEA* = 0.00; perceived parental psychological control and perceived adolescent GAD symptoms: χ^2/df = 2.93, CFI = 0.99, NFI = 0.99, χ^2 = 0.04; and perceived parental psychological control and perceived adolescent SAD symptoms: χ^2/df = 3.09, CFI = 0.99, NFI = 0.98, *RMSEA* = 0.04. For all four models, the χ^2/df ratio, the CFI, NFI and the RMSEA of the final models were better than those of the restricted models and the non-restricted models that only allowed for either age differences or for sex differences.

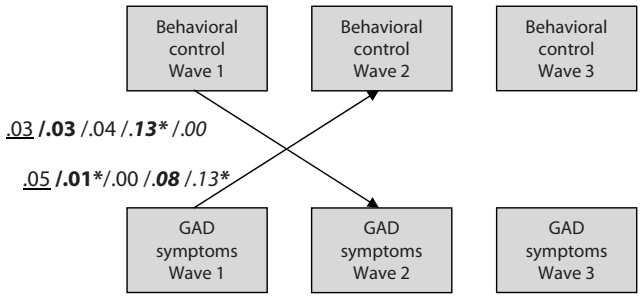
Figure 3.1 represents the model for the entire adolescent group and the four non-restricted models that allowed for age and sex differences for perceived parental behavioral control and psychological control, and adolescent GAD and SAD symptoms, respectively. As noted in "Method", only the significant cross paths related to the study's examination of the effect models are presented.

Table 3.2 Pearson correlations for perceived parental behavioral control, perceived parental psychological control, perceived adolescent generalized anxiety disorder (GAD) symptoms and perceived adolescent separation disorder (SAD) symptoms of the total adolescent group and age and sex groups

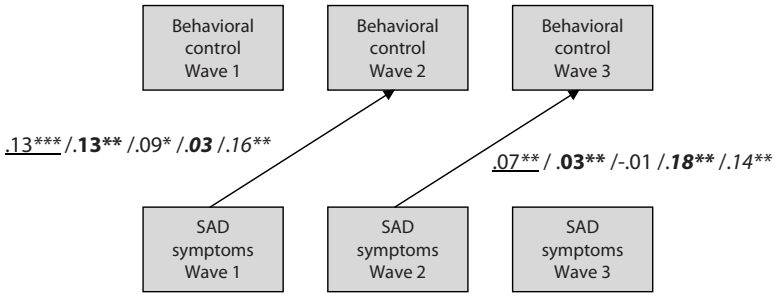
Parameter	Entire group	Early adolescent boys	Early adolescent girls	Late adolescent boys	Late adolescent girls
Initial correlations					
BcW1-GADW1	0.07	0.06	0.10*	0.16*	0.02
BcW1-SADW1	0.05	0.05	0.03	0.04	-0.02
PcW1-GADW1	0.12**	0.16**	0.19**	0.24**	0.11
PcW1-SADW1	0.12**	0.14**	0.14**	0.19*	0.02
Stability paths					
BcW1-BcW2	0.37**	0.20**	0.37**	0.44**	0.47**
BcW2-BcW3	0.55**	0.43**	0.46**	0.60**	0.62**
PcW1-PcW2	0.35**	0.20**	0.34**	0.49**	0.50**
PcW2-PcW3	0.47**	0.36**	0.45**	0.46**	0.64**
GADW1-GADW2	0.35**	0.20**	0.34**	0.49**	0.50**
GADW2-GADW3	0.62**	0.46**	0.61**	0.64**	0.72**
SADW1-SADW2	0.42**	0.35**	0.47**	0.39**	0.49**
SADW2-SADW3	0.46**	0.34**	0.51**	0.38**	0.59**
Cross paths					
BcW1-GADW2	0.07**	0.06	0.10*	0.21**	0.02
GADW1-BcW2	0.07*	0.13**	0.04	0.15	0.14*
BcW2-GADW3	0.08**	0.13**	0.10*	0.12	0.11
GADW2-BcW3	0.07*	0.06	0.11*	0.19*	0.10
BcW1-SADW2	0.06*	0.04	0.04	0.05	0.06
SADW1-BcW2	0.14**	0.13**	0.10*	0.05	0.16*
BcW2-SADW3	0.12**	0.11*	0.09*	0.01	0.02**
SADW2-BcW3	0.12**	0.06	-0.01	0.25**	0.23**
PcW1-GADW2	0.04	0.12*	0.05	0.22**	0.06
GADW1-PcW2	0.11**	0.15**	0.14**	0.21**	0.25**
PcW2-GADW3	0.05	0.12**	0.11**	0.14	0.23**
GADW2-PcW3	0.20**	0.25**	0.23**	0.28**	0.25**
PcW1-SADW2	0.07*	0.13**	0.07	0.18*	-0.03
SADW1-PcW2	0.16**	0.16**	0.14**	0.19*	0.24**
PcW2-SADW3	0.09**	0.12**	0.15**	0.14	0.15*
SADW2-PcW3	0.16**	0.20**	0.09	0.32**	0.16*

Note. W1, W2, W3, wave 1, wave 2, wave 3; Bc, behavioral control; Pc, psychological control; GAD, generalized anxiety disorder symptoms; SAD, separation anxiety disorder symptoms.
* $p < 0.05$. ** $p < 0.01$.

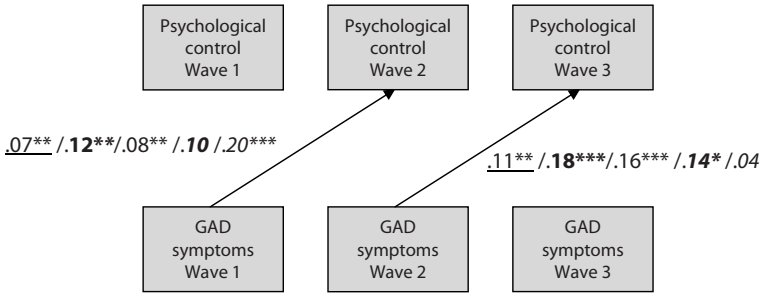
a


Behavioral control Wave 1
Behavioral control Wave 2
Behavioral control Wave 3
.03 /.03 /.04 /.13* /.00
.05 /.01*/.00 /.08 /.13*
GAD symptoms Wave 1
GAD symptoms Wave 2
GAD symptoms Wave 3

b


Behavioral control Wave 1
Behavioral control Wave 2
Behavioral control Wave 3
.13*** /.13** /.09* /.03 /.16**
.07** / .03** /-.01 /.18** /.14**
SAD symptoms Wave 1
SAD symptoms Wave 2
SAD symptoms Wave 3

c


Psychological control Wave 1
Psychological control Wave 2
Psychological control Wave 3
.07** /.12**/.08** /.10 /.20***
.11** /.18***/.16*** /.14* /.04
GAD symptoms Wave 1
GAD symptoms Wave 2
GAD symptoms Wave 3

d

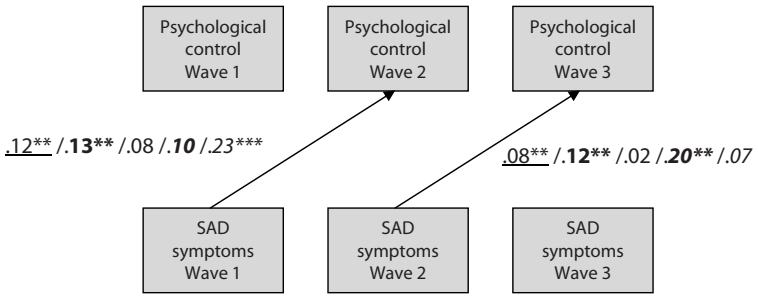

Psychological control Wave 1
Psychological control Wave 2
Psychological control Wave 3
.12** /.13** /.08 /.10 /.23***
.08** /.12** /.02 /.20** /.07
SAD symptoms Wave 1
SAD symptoms Wave 2
SAD symptoms Wave 3

Figure 3.1 **a** Standardized estimates of the statistically significant cross paths in a three-wave path model for adolescent-reported parental behavioral control and adolescent GAD symptoms for the total adolescent group and for all four age–sex groups, **early boys**, early girls, ***late boys*** and *late girls*. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. All stability paths are significant. The complete overview of the results can be obtained from the first author. **b** Standardized estimates of the statistically significant cross paths in a three-wave path model for adolescent-reported parental behavioral control and adolescent SAD symptoms for the total adolescent group and for all four age–sex groups, **early boys**, early girls, ***late boys*** and *late girls*. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. **c** Standardized estimates of the statistically significant cross paths in a three-wave path model for adolescent-reported parental psychological control and adolescent GAD symptoms for the total adolescent group and for all four age–sex groups, **early boys**, early girls, ***late boys*** and *late girls*. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. **d** Standardized estimates of the statistically significant cross paths in a three-wave path model for adolescent-reported parental psychological control and adolescent SAD symptoms for the total adolescent group and for all four age–sex groups, **early boys**, early girls, ***late boys*** and *late girls*. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Initial correlations and cross paths of behavioral control and GAD symptoms

The initial correlations at the first wave between behavioral control and GAD were only significant for the early adolescent girls and the late adolescent boys. With regard to the cross paths between the constructs, results revealed that behavioral control on the first wave only significantly predicted GAD symptoms on the second wave for late adolescent boys. GAD on the first wave predicted behavioral control on the second wave for early adolescent boys and late adolescent girls. The association between behavioral control from the first wave to GAD on the second wave for late adolescent boys was as strong as the association between GAD on the first wave to behavioral control on the second wave for the late adolescent girls.

Initial correlations and cross paths of behavioral control and SAD symptoms

The initial correlations between behavioral control and SAD symptoms were not significant for the total adolescent group or any of the adolescent age and sex cohorts. Inspection of the cross paths revealed that a unidirectional pattern emerged; adolescents' SAD symptoms on one wave consistently had a significant influence on perceived parental behavioral control on the next wave. From the first wave to the second wave, this applied to the total adolescent group, the early adolescent boys, early adolescent girls and late adolescent girls. From the second wave to the third wave, this pattern concerned the total adolescent group, early adolescent boys, the late adolescent boys with the strongest association and late adolescent girls.

Initial correlations and cross paths of psychological control and GAD symptoms

Initial correlations on the first wave for psychological control and GAD symptoms were positive and significant for the total adolescent group, early adolescent boys,

early adolescent girls and late adolescent boys. The cross paths demonstrated a clear unidirectional pattern; GAD on the first wave predicted psychological control on the second wave and GAD on the second wave predicted psychological control on the third wave for both the total adolescent group and the early adolescent boys and girls. From the first wave (GAD) to the second wave (psychological control), this pattern also occurred for the total adolescent group and the late adolescent girls; from the second wave to the third wave this pattern also occurred for the late adolescent boys.

Initial correlations and cross paths of psychological control and SAD symptoms

Initial correlations on the first wave were positive and significant for the total adolescent group, early adolescent boys, early adolescent girls and late adolescent boys. The cross paths showed a specific unidirectional pattern from SAD symptoms to psychological control for the total adolescent group and the early adolescent boys. From the first wave to the second wave, the cross path was also significant for late adolescent girls.

Discussion

The purpose of the current study was to investigate the direction of effects between perceived parental behavioral and psychological control, and adolescent self-reported GAD and SAD symptoms, and to explore age and sex differences.

Effect models

The results of this study overall demonstrate a clear pattern of a unidirectional effect model, specifically a child effect model (Branje, Hale, & Meeus, 2008; Lollis & Kuczynski, 1997) to describe the data. This child effect model demonstrates that adolescents with high initial levels of self-reported anxiety symptoms perceive their parents as becoming more controlling over time. This finding may be interpreted in two ways. The first interpretation is that adolescents suffering from anxiety symptoms perceive more controlling behaviors from their parents. This finding is in agreement with previous studies of cognitive biases of individuals with anxiety symptoms (Alloy & Riskind, 2006; Riskind, Williams, & Joiner, 2006). Riskind and Williams (2005) suggested that a dysfunctional looming cognitive style (LCS) might best describe individuals with anxiety symptoms. The LCS assumes that the generation of harm-related scenarios and appraisals leads to cognitions (e.g., worry) that activate specific behavioral responses (Riskind et al., 2007). For individuals with GAD symptoms, systematic biases have been found in the ways these individuals interpret ambiguous

events, report threat-related automatic thoughts and process threat-related information (Beck & Clark, 1997; Riskind & Williams, 2005).

A second possibility is that parents of adolescents reporting anxiety symptoms actually change their behaviors and become more controlling toward their adolescents with self-reported anxiety symptoms. According to the child effect model, a child's characteristics are influential in shaping parental behavior (Bell & Chapman, 1986; Belsky, 1984). Adolescents with GAD or SAD symptoms may elicit parental behavioral control and parental psychological control as the parents try to prevent stress while adapting to the sensitivity of their adolescent in specific situations. In previous studies, it has been suggested that, in general, negative emotional problems of adolescents could easily lead to negative emotional responses of their parents (Albrecht, Galambos, & Jansson, 2007; Rogers, Buchanan, & Winchell, 2003). More specifically, negative appeals from adolescents with GAD or SAD symptoms can lead to parents becoming less sensitive and more demanding (through behavioral control and psychological control) (Bögels & Brechman-Toussaint, 2006; Rapee, 2001).

Perceived parental psychological control and adolescent anxiety symptoms

With respect to the child effect model, adolescent GAD and SAD symptoms are stronger and more systematically associated with parental psychological control than with parental behavioral control. Adolescents with self-reported GAD and SAD symptoms perceive their parents as becoming increasingly psychologically controlling over time. The finding of significant associations between psychological control and adolescent anxiety is in agreement with previous cross-sectional studies (Hale, Engels, & Meeus, 2006; Rapee, 1997). This specific connection between parental psychological control and anxiety as internalizing problem behavior could stem from a cognitive bias that make adolescents with anxiety symptoms perceive their parents as more psychologically controlling (Alloy & Riskind, 2006).

Age and sex differences

The exploration of age and sex differences demonstrated that for the early adolescents, the child effects were stronger for the boys; for the late adolescents, the child effects did not differ between boys and girls. This finding is partly in agreement with a longitudinal study, demonstrating that the influence of the cognitive bias of perceived negative parental behaviors, such as parental control, decreases over time for adolescent boys, whereas for adolescent girls their sensitivity to perceived negative parental behaviors increases (Hale, Engels, & Meeus, 2006).

Possible treatment implications

The results of this study can have some practical implications for the treatment of adolescents with anxiety symptoms and their parents. With respect to adolescents with GAD and SAD symptoms, the American Academy of Child and Adolescent Psychiatry indicates that the Multimodal Treatment Approach (American Academy of Child and Adolescent Psychiatry, 2007) should be the first choice in treating adolescents with anxiety symptoms. Cognitive-behavioral therapy (CBT) has been indicated as the first choice for anxious youth (Albano & Kendall, 2002; Borkovec & Ruscio, 2000; Silverman et al., 1999; Wood et al., 2009). Studies comparing family-focused (FCBT) and child-focused (CCBT) interventions demonstrated that both approaches led to ongoing reductions in child anxiety. Recently, support has been found for an advantage of a FCBT program above a CCBT program for child and early adolescent anxiety disorder symptoms in a 1-year follow-up design (Wood et al., 2009). This line of research is ongoing.

With respect to specific therapy findings for adolescent SAD, it has been shown that for adolescents with SAD symptoms, interventions that improve parent–child interactions and teach parenting skills that reinforce the adolescent's positive adaptive coping and stimulate developmental-appropriate behavior and autonomy are important ingredients in successful treatment (American Academy of Child and Adolescent Psychiatry, 2007). Additionally, based on the results of this study, we would suggest treatment should also be supplemented with parental psycho-education, since adolescents with SAD symptoms perceive an increase of parental controlling behaviors over time.

As to adolescent GAD, reviews of specific GAD treatment outcome research indicated that CBT as a part of the Multimodal Treatment Approach is the first choice of all other treatments (e.g., Albano & Kendall, 2002; Borkovec & Ruscio, 2000). Several studies have indicated that especially for late adolescents, the integration of CBT with a family component (Barmish & Kendall, 2005; Diamond & Josephson, 2005; Southam-Gerow, Kendall, & Weersing, 2001) or CBT in a combination with interpersonal therapy (Borkovec et al., 2002) is advisable. In light of our findings, we would suggest that specific attention should also be paid to the adolescent's perception of parental control in the parent–adolescent interaction. This is important since it is known that for adolescents with GAD symptoms, and especially for late adolescent girls, the quality of their relationships forms a central theme in their frequent and excessive worry (Hale, Engels, & Meeus, 2006; Hankin & Abramson, 2001).

Limitations

In terms of the limitations of this study, it should be first noted that the research sample only comprised adolescents from the general population. Nevertheless, research in community populations can provide insight into developmental issues relevant to the clinical setting (Hale, Engels, & Meeus, 2006).

Secondly, when interpreting the results, it is important to bear in mind that perceived adolescent GAD and SAD symptoms were assessed by self-report. When we refer, for instance, to adolescent GAD symptoms, we are speaking of self-reported GAD symptoms. In the field of research on adolescent anxiety, the adolescent self-report has been widely accepted for use (Hale et al., 2008; Stallings & March, 1995). However, this should not be confused with a clinical diagnosis of an anxiety disorder. In addition, parental behavioral control and parental psychological control were also assessed by the use of adolescent self-reports. Recently, it has been suggested that adolescents are able to distinguish when their parents are controlling their activities (Arim, Marshall, & Shapka, 2010; Padilla-Walker & Carlo, 2003; Smetana & Daddis, 2002). Nevertheless, since parental reports of their own parenting behaviors were not included in the current study, it cannot be said for sure whether the adolescent perception is in agreement with actual parental behaviors or if adolescent anxiety symptoms play a role in the evaluation of parental behaviors.

Furthermore, in this study, attention is only given to both parents as a unit, rather than focusing attention on the father and the mother separately. It is possible that adolescent boys and girls respond in a different way to their mothers and fathers. In addition, it is also possible that parents' gender socialization influences eventual differences in their controlling behaviors (Arim, Marshall, & Shapka, 2010). A multi-informant perspective could be used in future studies of adolescent anxiety and parental control to help judge the findings of this study.

In the current study, behavioral control has been measured by the CRPBI subscale 'behavioral control'. According to recent theoretical insights (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010; Warren & Sroufe, 2004), the ambiguous interpretation of the term control in behavioral control is visible in the CRPBI subscale 'behavioral control' (Schaefer, 1965; Soenens & Vansteenkiste, 2010) used in this study. It is unclear whether the positive associations between behavioral control and adolescent GAD and SAD symptoms were exactly driven by structure and regulation, by pressuring parenting, or by both. The suggestion to develop distinguished measures of parental regulation and structure, on the one hand, and control, on the other hand, will definitively refine the measurements of parenting dimensions (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010; Wang, Pomerantz, & Chen, 2007).

The positive relationship between parental psychological control and depression as internalizing problem behavior has been demonstrated in a longitudinal design

(Soenens et al., 2008). It is conceivable that depression also plays a role in the relationship between parental psychological control and adolescent anxiety. Therefore, future longitudinal research to explore the relationship between psychological control and co-occurring symptoms of adolescent anxiety and depression may provide new insights.

Summary

To conclude, the current study demonstrates a clear unidirectional child effect model in the relationship between adolescent GAD and SAD symptoms and perceived parental behavioral control and parental psychological control. In other words, adolescents suffering from anxiety symptoms perceive their parents as becoming increasingly controlling, less sensitive and more demanding over time. In addition, it was found that adolescent GAD and SAD symptoms are stronger and more systematically related to psychological control than to behavioral control possibly due to a cognitive bias on the part of the adolescent. With regard to the exploration of age and gender differences, GAD and SAD symptoms almost systematically predicted parental control over time for the early adolescent boys, whereas no significant differences were found for the late adolescents. The findings of the current study may indicate that adolescents with GAD and SAD symptoms might need specific psychotherapy focused on restructuring the adolescent's perception of the parent–adolescent relationship, as well as the need for parental psycho-education in the context of the Multimodal Treatment Approach.

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Is the resolution style 'exiting statements' related to adolescent problem behavior?

Wijsbroek, S. A. M., Hale III, W. W., Van Doorn, M. D., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2010). Is the resolution style 'exiting statements' related to adolescent problem behavior? *Journal of Applied Developmental Psychology*, *31*, 60-69.

Abstract

This study examined the association between the adolescents' conflict resolution style 'exiting statements' (i.e., the expression of the adolescent' desire to minimize or end the contact with his or her parents) in parent–adolescent conflicts with self-rated adolescent GAD symptoms and delinquency symptoms of 1313 adolescents. A multi-group, structural equation model was employed to analyze the relationship between the constructs for four age–sex groups. Results demonstrated that age and sex moderated the relationship between exiting statements, GAD and delinquency. For late adolescent females, perceived difficulties in solving conflicts in horizontal parent–adolescent relationships were significantly related to self-rated GAD symptoms. It is discussed how the Multimodal Treatment Approach could be applied for family conflict resolution. For early adolescent males, perceived problems in solving parent–adolescent conflicts were strongly related to self-rated delinquency symptoms. These findings are discussed in light of Parent Management Training that focuses on the conflict resolution styles of family members.

Introduction

In previous studies it has been shown that ineffective and destructive conflict resolution in parent–adolescent conflicts is related to internalizing (e.g., Branje, Van Doorn, VanderValk, & Meeus, 2009; Collins & Laursen, 1992, Rubenstein & Feldman, 1993; Tucker, McHale, & Crouter, 2003) and externalizing adolescent problem behavior (e.g., Branje et al., 2009; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001; Rubenstein & Feldman, 1993). Effective and constructive conflict resolution in parent–adolescent conflicts has been found to be associated with better adolescent adjustment, that is, less depression, aggression and anxiety (Branje et al., 2009; Tucker et al., 2003), and with less risk behavior, higher self-esteem and better school functioning (Collins & Laursen, 1992; Rubenstein & Feldman, 1993). More recently, a destructive conflict style that has been linked to problems for adolescents is the conflict resolution style 'exiting statements'.

To our knowledge, only one study of the conflict resolution style exiting statements has been conducted as of the present time (i.e., Branje et al., 2009). The conflict resolution style exiting statements is conceptualized as the adolescents' expression of the desire to end the relation without resolving the conflict (Branje et al., 2009). The adolescent expresses the wish to no longer consider his or her parents as his or her parents anymore and does not want to have any further contact with them. This conviction is reflected in a process of emotional detachment and limitation of contact. The adolescent wishes to actively limit his or her contact with his or her parents to an

absolute minimum or, in extreme forms, actively end all contact with the parents, in the context of an emotionally poor and troublesome parent–adolescent relationship. The conceptualization of exiting statements as the expression of the desire to end the relationship without resolving the conflict is based on an existing typology of responses to dissatisfaction in close relationships (Rusbult, Johnson, & Morrow, 1986; Rusbult & Zembrodt, 1983). The resolution style exiting statements is generally studied as the expression of the desire of the adolescent to minimize or to end the relationship, the statements of the adolescent about an eventual end or the use of behaviors that could end the relationship rather than actually ending the relationship. How the relationship actually changed as the result of the exiting statements or if the adolescent really detached from the relationship has not been assessed.

Exiting statements is conceptually distinguished from the other negative conflict resolution styles, such as conflict engagement, withdrawal and compliance (Kurdek, 1994). Conflict engagement refers to quarreling, showing anger and behaving with a risk on loss of self-control. Withdrawal refers to a temporary situation in which, on the initiative of the adolescent, parental contact is limited and communication, especially about contentious topics, is avoided without the intention of ending the relationship. Compliance refers to the adolescent accepting any solution of his or her parents without presenting his or her own point of view. These styles take place within the context of ongoing mutual interactions between parents and adolescent, whereas in case of the conflict resolution style of exiting statements, communication takes place only within the context of desired extremely minimized interactions or the ending of mutual interactions. In this framework the conflict resolution style of exiting statements can also be considered to be one of the most extreme forms of avoidance. In the current study the conflict resolution style of exiting statements is investigated as the expression of the adolescents' desire to extremely minimize or end the contact with his or her parents and no longer consider his or her parents as parents.

In general it has been found that greater problem severity is strongly related to the use of exiting statements in a close relationship (Rusbult, Johnson, & Morrow, 1986; Rusbult & Zembrodt, 1983). In the case of adolescents (Branje et al., 2009) greater psychosocial problem severity is strongly related to the use of exiting statements in the parent–adolescent relationship. Branje et al. (2009) found that adolescents who used the conflict resolution style of exiting statements had more conflicts with their parents before and simultaneous to the use of exiting statements and had significant higher levels of adolescent internalizing (i.e., depression and anxiety) and externalizing (i.e., aggression) problem behavior.

However, the aforementioned study on exiting statements did not examine both adolescent age and sex differences in one and the same design. Therefore, the main purpose of the current study is to explore how the conflict resolution style exiting

statements is related to the internalizing and externalizing problem behavior of early and late adolescent males and females from the general population.

In regard to adolescent internalizing problem behavior, generalized anxiety disorder symptoms (GAD), one of the most commonly occurring adolescent problems (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Rapee, 1991; Verhulst, Van der Ende, Ferdinand, & Kasius, 1997), may be related to exiting statements. GAD is characterized by frequent, excessive anxiety and worry (American Psychiatric Association, 2000). Social-evaluative concerns are at the center of adolescent GAD worry symptoms (Hudson & Rapee, 2004; Weems, Silverman, & La Greca, 2000), hence interpersonal problems with parents were found to be related to adolescent GAD (Hale, Engels, & Meeus, 2006; Muris, Mayer, & Meesters, 2000; Muris, Meesters, Merckelbach, & Huelsenbeck, 2000; Muris, Meesters, Van Melick, & Zwambag, 2001; Van Brakel, Muris, Bögels, & Thomassen, 2006). Adolescents with GAD subsequently use avoidant coping behavior in negative interactions (Borkovec, Newman, Pincus, & Lytle, 2002; Newman, Castonguay, Borkovec, & Molnar, 2004; Riskind, 2005). The conflict resolution style of exiting statements can also be considered to be one of the most extreme forms of avoidance, thus we expected adolescent exiting statements and GAD symptoms to be significantly and positively related to one another.

A myriad of studies has established that, as is the case with GAD, adolescents with delinquent behavior symptoms also experience problematic parental relationships (e.g., Goetting, 1994; Meeus, Branje, & Overbeek, 2004; Simons, Chao, Conger, & Elder, 2001; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikström, 2002; Wright, Caspi, Moffitt, & Silva, 2001). Social control theory (Hirschi, 1969) assumes that a good parent–child relationship protects a child against the development of delinquency. Therefore, in this study the conflict resolution style exiting statements and adolescent delinquency symptoms were expected to be significantly and positively related.

Another goal of this study concerns the differences of exiting statements and problem behavior between early and late adolescent age groups as well as adolescent males and females from the general population. Specifically, with regard to adolescent age groups, we tested two alternative hypotheses. The first hypothesis is derived from findings that early adolescence is a specific age-period with a high prevalence of parent–adolescent conflict (e.g., Arnett, 1999; Laursen, Coy, & Collins, 1998; Pinquart & Silbereisen, 2002), compared to late adolescence (De Goede, Branje, & Meeus, 2009; Furman & Buhrmester, 1985; Laursen et al., 1998). In this period a destructive conflict resolution style as exiting statements may be strongly associated to adolescent behavioral problems, such as self-rated GAD and delinquency symptoms, than in late adolescence (Russell, Pettit, & Mize, 1998).

The second hypothesis originates from the prior observation that parent–child relationships develop from a vertical relationship in early adolescence, where parents

exert authority over their children, towards a more horizontal and egalitarian relationship in late adolescence (e.g., De Goede, Branje, & Meeus, 2009; Russell, Pettit, & Mize, 1998; Younniss & Smollar, 1985). When parents and adolescents develop more egalitarian relationships (Russell, Pettit, & Mize, 1998) adolescents also learn to solve conflicts in more mature and constructive ways with their increasing possibilities of perspective taking and compromise. A destructive conflict resolution style might be less appropriate in late adolescence than in early adolescence. The second hypothesis therefore predicts a stronger relationship between exiting statements and self-rated GAD symptoms and delinquency symptoms in late adolescence than in early adolescence.

With respect to adolescent sex differences, Branje et al. (2009) found sex specific moderating effects of negative conflict resolution for internalizing and externalizing adolescent problem behavior. They found a moderating effect of sex such that for females only negative conflict resolution styles and internalizing problem behavior were associated, whereas for males they observed an association between negative conflict resolution styles and both internalizing and externalizing problem behavior.

When the findings of the aforementioned studies are taken together, they seem to suggest that age will moderate the relationship between exiting statements and GAD for adolescent females but not for the relationship between exiting statements and delinquency. For adolescent males it would appear that age moderates the relationship between exiting statements and GAD symptoms as well as exiting statements and delinquency. Hence, the final goal of the present study was to investigate whether the age of the adolescent males and females moderated the relation between exiting statements on the one hand and self-rated GAD and delinquency symptoms on the other hand. However, since this has not been directly tested in previous studies, the moderating effects of age on the associations between exiting statements and GAD and exiting statements and delinquency for adolescent males and females were tested in an explorative manner.

In summary, in this study the association between the adolescent conflict resolution style exiting statements (i.e., the expression of the adolescents' desire to minimize or end the contact with his or her parents and no longer consider his or her parents as parents) and perceived GAD symptoms as internalizing problem behavior, and perceived delinquency symptoms as externalizing problem behavior, was investigated for early and late adolescent males and females.

Method

Participants

The 1313 students who participated in this study came from various Dutch junior high and high schools in the Utrecht province of The Netherlands. The data of this study

were collected in the context of an ongoing study of Dutch adolescents. Because we wanted to study age differences in the relationship between exiting statements and GAD and between exiting statements and delinquency, we used data from early and late adolescents in the general population. In this study the adolescent population was comprised of 923 (70.3%) early adolescents of whom 455 (49.5%) were girls and 468 (50.5%) boys, and 390 (29.7%) late adolescents of whom 221 (43.8%) were girls and 169 (56.2%) boys. The early adolescents were ranging in age from 11 to 16 years old, (M = 13.37, SD = .59) with the group composed primarily of 13–14 year olds (95.2%). The late adolescents were ranging in age from 20 to 24 years old (M = 20.74, SD = .85) with the group composed primarily of 20–21 year olds (82%).

Procedure

Prior to the study, both adolescents and parents received written information and, if the adolescent chose to participate, were required to provide written informed consent. The adolescent participants completed questionnaires during homeroom study period, which lasted for an hour. Verbal instructions as how to fill in the questionnaires were given to the adolescents by the research assistants just prior to the testing to complement the written instructions printed above each questionnaire. At the end of the homeroom study period, the research assistants collected the questionnaires. These assistants conducted the data entry to insure that the data remained anonymous to the researcher.

Measures

Conflict resolution style exiting statements

The conflict resolution style exiting statements was measured by a Dutch adaptation of Kurdek's Conflict Resolution Style Inventory (CRSI; Kurdek, 1994), which measured four conflict resolution styles: conflict engagement, positive problem solving, withdrawal and compliance. The Dutch adaptation includes a fifth conflict resolution style, 'exiting statements', the expression of the adolescents' desire to minimize or end the contact with his or her parents and no longer consider his or her parents as parents (Meeus et al., 2004). Items pertaining to exiting statements behaviors were used in previous research and added to Kurdek's measure (i.e., Branje et al., 2009). The adolescent rated the four items of this subscale on a five-point Likert scale: (1) *never*, (2) *seldom*, (3) *sometimes*, (4) *often*, and (5) *always*. Factor analysis for this study showed that the revised CRSI revealed a five-factor structure. Loadings on the exiting statements items were > .45 with no cross-loadings on the other factors. The instruction was: 'Using the scales (1) *never* and (5) *always*, rate how frequently you use each of the following styles to deal with arguments or disagreements with

your parents' (instruction). The four 'exiting statements' items are: (1) "I no longer consider my parents as my parents", (2) "I have told my parents that I'll never want to have anything to do with them ever again", (3) "I have told my parents I do not want to have any contact with them" and (4) "I have told my parents I never want to talk with them again". In the present study, Cronbach's alpha was .87 for the early adolescents and .85 for the late adolescents. Concurrent validity was demonstrated by negative correlations between exiting statements and the scale 'support' of the Network of Relationship Inventory (NRI: Furman & Buhrmester, 1985) in early ($r = -.28$, $p < .01$) and late ($r = -.38$, $p < .01$) adolescents, and the positive correlations between exiting statements and the scale 'rejection' of the Level of Expressed Emotion scale (LEE: Gerlsma & Hale, 1997; Hale, Raaijmakers, Gerlsma, & Meeus, 2007) in early ($r = .33$, $p < .01$) and late ($r = .39$, $p < .01$) adolescents.

Delinquency

The delinquency measure of this study was derived from a self-report questionnaire of 16 items, designed by Baerveldt, Van Rossem and Vermande (2003). Adolescents were asked how many times they had committed minor offences, such as shoplifting, petty theft, or vandalism, during the previous twelve months. The adolescent rated 16 items on a four point score ranging from 'never' to 'four times or more'. Cronbach's alpha for this scale was .86 for the early adolescents and .78 for the late adolescents.

GAD symptoms

The GAD subscale of The Screen for Child Anxiety Related Emotional Disorders (SCARED) was used to assess GAD symptoms. The SCARED is a self-report questionnaire, designed for children and adolescents, that measures the occurrence of anxiety disorder symptoms on a three point Likert scale: 0 (*almost never*), 1 (*sometimes*), or 2 (*often*) (Birmaher et al., 1997, 1999). The GAD symptom dimension subscale consists of nine items. An example item for a GAD symptom is: "I worry if others will like me". Reliability and construct validity of the SCARED are strong (Hale, Raaijmakers, Muris, & Meeus, 2005; Myers & Winters, 2002). In this study Cronbach's alpha for this subscale was .85 for the early adolescents and .90 for the late adolescents.

Data analysis

First, descriptive analysis of variance and zero order correlations were conducted on exiting statements, GAD and delinquency scores in the adolescent age and sex groups. Second, a multi-group Structural Equation Modeling (SEM) was applied. As noted in the introduction, only one empirical study has been conducted on exiting

statements and this cross-sectional study was not able to determine the direction of effects. Therefore, before determining our final model, two models were tested; one in which exiting statements predicted GAD and delinquency and another in which GAD and delinquency predicted exiting statements. In this preliminary analysis we found that the former model (i.e., exiting statements predicting GAD and delinquency) statistically had the strongest explanatory power.[1,2] Furthermore, this model agrees with the general perspective in social sciences to view interaction as a risk factor for anxiety disorders and delinquency (e. g., Granic & Patterson, 2006; Klein & Pine, 2002). Thus, findings for the model involving exiting statements predicting GAD and delinquency are presented and discussed.

This final model of exiting statements predicting GAD and delinquency was tested as a multi-group model to explore potential adolescent age and sex differences in the relationship between exiting statements and GAD and delinquency. Specifically, the multi-group model consisted of early adolescent males, late adolescent males, early adolescent females and late adolescent females.

Three model designs were examined. First a restricted model design in which all of the estimated parameters were required to be equal across groups, secondly a model design in which the estimated parameters were allowed to differ for the different age groups (i.e., early and late adolescents) and finally a non-restricted model design in which all of the parameters were allowed to differ across age and sex groups. Model fit was evaluated by means of three indices (Kline, 2005): the Goodness of Fit Index (GFI: a value of .95 or greater represents a good fit), the Comparative Fit Index (CFI: a value of .95 or greater represents a good fit) and the Root Mean Square Error of Approximation (RMSEA: a value of .05 or less represents a good fit).

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[1] We tested each of these two models (i.e., the first model of exiting statements predicting GAD and delinquency and the second model of GAD and delinquency predicting exiting statements) separately since both models are not nested models; hence, it is not possible to comparatively test the fit of both models using the chi-square difference test. However, because both models are exactly the same regarding model complexity, it is possible to compare the values of their respective fit indices (Chen, 2007). Generally, the differences were very small and negligible. The values of the χ^2 and the RMSEA were slightly in favour of the second model of GAD and delinquency predicting exiting statements (χ^2 = 8.1 and RMSEA = .03 for the first model; χ^2 = 6.6 and RMSEA = .02 for the second model). The values of GFI and CFI were equal for both models (GFI for both models is 1.00 and CFI .98). However, one feature favoured our final model; the explanatory power was somewhat stronger for the first model (the values of the squared multiple correlations being higher). For our final model the mean squared multiple correlations across the four groups was .089; for the second model the mean squared multiple correlation was .087.

[2] It should also be noted that to estimate the possible biasing effects of distributional problems a bootstrap analysis (with 500 bootstrap samples) was conducted to validate the results of the final model obtained with regular Maximum Likelihood (ML) estimation, which requires the assumption of multivariate normality. Because the mean bias values regarding the model estimates (i.e., regression weights, standardized regression weights and variances) were very small (range −.007 to +.002), we decided to continue regular ML estimation for our model testing.

Results

Age and sex differences

The means and standard deviations on exiting statements, GAD, and delinquency are shown in Table 4.1. An age by sex ANOVA showed no significant differences between males and females on the conflict resolution style exiting statements: $F(1, 1309) = .02$, *ns*, $\eta^2 = .00$, but revealed that late adolescents used the conflict resolution style exiting statements less often than early adolescents, $F(1, 1309) = 19.83$, $p < .01$, $\eta^2 = .02$. The interaction between age and sex of adolescent was not significant, $F(1, 1309) = .41$, *ns*.

Females had significantly higher levels of GAD than males, $F(1, 1309) = 66.07$, $p < .01$, $\eta^2 = .05$, and late adolescents had significant higher levels of GAD than early adolescents, $F(1, 1309) = 6.50$, $p = .01$, $\eta^2 = .01$. This main effect of age, however, was qualified by an interaction with sex, $F(1, 1309) = 12.71$, $p < .01$, $\eta^2 = .01$, indicating that the level of GAD was not different for early adolescent males and late adolescent males, whereas the level of GAD was significantly higher for late adolescent females than for early adolescent females.

Delinquency was found to be higher for males than for females, $F(1, 1309) = 69.70$, $p < .01$, $\eta^2 = .05$. No age effect and no significant interaction between age and sex of adolescents were found; *ns*, $\eta^2 = .00$.

Zero order correlations among exiting statements, GAD, and delinquency scores were also computed for male and female participants (see Table 4.2). These scores were significantly intercorrelated for both male and female participants in early adolescence. GAD and exiting statements scores were correlated for both male and female participants in late adolescence.

Table 4.1 Means and SD scores for the conflict resolution style exiting statements, adolescent generalized anxiety disorder symptoms (GAD), and adolescent delinquency symptoms in early and late adolescent males and females

	Males		Females	
	Early adolescents (*n* = 468)	Late adolescents (*n* = 169)	Early adolescents (*n* = 455)	Late adolescents (*n* = 221)
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Exit. statements	1.22 (.42)	1.10 (.23)	1.20 (.44)	1.11 (.28)
GAD	1.30 (.35)	1.28 (.32)	1.41 (.40)	1.55 (.48)
Delinquency	1.20 (.35)	1.20 (.29)	1.06 (.15)	1.07 (.14)

Table 4.2 Pearson correlations for the adolescent age–sex groups for the conflict resolution style exiting statements, adolescent generalized anxiety disorder symptoms (GAD), and adolescent delinquency symptoms

		(1) Exiting statements	(2) Generalized anxiety disorder symptoms (GAD)	(3) Delinquency
(1)	Exiting statements	–	**.30***	**.29***
		–	.21*	–.05
		.12*	–	–
(2)	Generalized anxiety disorder symptoms (GAD)	.29*	–	–
(3)	Delinquency	**.14***	–	–
		.10	–	–

Note. The values above the diagonal represent the scores of the males, the values below the diagonal represent the scores of the females. Desriptives for the early adolescents are presented in bold, for the late adolescents in regular font.
* $p < .05$. ** $p < .01$.

Multi-group SEM analyses

The primary goal of the present study was to investigate whether both adolescent age and sex moderated the relation between the conflict resolution style exiting statements, on the one hand and self-rated GAD and delinquency symptoms on the other hand. The covariance between GAD and delinquency has not been included in the model due to the lack of a significant correlation between these two constructs ($r = .00$, *ns*).

Model comparisons tests established that the two-group age model (early and late adolescents) fit the data better than the restricted model ($\Delta\chi^2 = 7.93$, $\Delta df = 2$, $p = .019$), and that the four-group age and sex model (early and late adolescent males and females) had an even better fit of the data than the two-group model ($\Delta\chi^2 = 31.86$, $\Delta df = 4$, $p = .001$). The non-restricted model provided a good fit to the data ($\chi^2(4) = 8.12$, $p = .09$, GFI = 1.00, CFI = .97, *RMSEA* = .03, *Confidence Interval of RMSEA*: .00–.06). Therefore we concluded that both adolescent age and sex moderated the relation between the conflict resolution style exiting statements on the one hand and GAD and delinquency on the other hand.

Table 4.3 represents the maximum likelihood results for the multi-group model. Results demonstrated that the conflict resolution style exiting statements was significantly and positively related to self-rated GAD symptoms in all four groups. Thus, early and late adolescent males and females, who used higher levels of the conflict resolution style exiting statements, also had higher levels of GAD. Moreover, critical ratio (*CR*) comparisons revealed that the path between exiting statements and GAD was significantly stronger for late adolescent females than for early adolescent females ($CR = 3.28$, $p < .001$), whereas no differences were found between early and late adolescent males ($CR = .48$, *ns*). Findings also revealed that the association between

Table 4.3 Maximum likelihood estimates of regression coefficients (*ML*) of the multi-group analyses

	Exiting statements – GAD		Exiting statements – delinquency	
	B	*SE(B)*	*B*	*SE(B)*
Early adolescent males	.25*** [b]	.04	.25*** [b]	.04
Early adolescent females	.11** [a]	.04	.05** [a]	.02
Late adolescent males	.30** [abc]	.11	–.07 [a]	.09
Late adolescent females	.50*** [c]	.11	.05 [a]	.03

Note. Estimates in the same column sharing the same superscript are not significantly different from each other.
* $p < .05$. ** $p < .01$. *** $p < .001$.

exiting statements and GAD was significantly stronger for early adolescent males than for early adolescent females ($CR = 2.37$, $p = .02$), whereas there was no significant difference found between the late adolescent males and females ($CR = -1.30$, *ns*).

The findings of adolescent exiting statements and self-rated delinquency symptoms revealed that this relation was significant and positive only for early adolescent males and females; there was no significant relationship between exiting statements and delinquency for the late adolescent males and females. Thus, early adolescent males and females who used higher levels of exiting statements had higher levels of delinquency as well. In contrast, in late adolescent males and females exiting statements and delinquency were not related to each other. Critical ratio comparisons showed that whereas these relations were not significantly different from each other for early and late adolescent females ($CR = -.02$, *ns*), this relationship was significantly stronger for the early adolescent males than for the late adolescent males ($CR = -2.97$, $p < .001$). Critical ratio comparisons also revealed that the path from exiting statements to delinquency was significantly stronger for early adolescent males than for early adolescent females ($CR = 4.88$, $p < .001$), whereas there was no significant difference between late adolescent males and females ($CR = -1.09$, *ns*). Thus, findings demonstrate that the relation between exiting statements and delinquency was significantly stronger for early adolescent males than for late adolescent males, early adolescent females and late adolescent females.

Discussion

The purpose of the present study was to examine the association between the perceived adolescent conflict resolution style exiting statements in parent–adolescent conflicts and self-rated adolescent GAD symptoms as internalizing problem behavior on the one hand, and self-rated delinquency as externalizing problem behavior on the other hand in the general population. The results of the current study are discussed in relation to possible treatment implications.

Exiting statements and GAD symptoms

In regard to the relationship between the conflict resolution style exiting statements and adolescent internalizing problem behavior, the results demonstrate that higher levels of adolescent exiting statements were significantly related to higher levels of self-rated adolescent GAD symptoms. This finding supports our expectations and is consistent with previous studies in which ineffective and destructive conflict resolution in parent–adolescent conflicts was observed to be positively and significantly related to internalizing adolescent problem behavior (e.g., Branje, van Doorn, & VanderValk, 2009; Collins & Laursen, 1992; Rubenstein & Feldman, 1993; Tucker, McHale, & Crouter, 2003).

With respect to the contrasting adolescent age and sex groups, it was found that for early and late adolescent males exiting statements and GAD were positively associated. This finding seemingly does not fit with our two aforementioned hypotheses. However, as presented in Table 4.3, for the adolescent females, the relationship between the conflict resolution style of exiting statements and GAD symptoms was found to be stronger in late adolescence than in early adolescence. Additionally, the relationship between exiting statements and GAD for the late adolescent females significantly differed from the other three adolescent groups. Hence, the results of the adolescent females did fit with the expectations of our second hypothesis: the use of a destructive resolution style, exiting statements, in late adolescence is less appropriate in a more horizontal and egalitarian parent–adolescent relationship than in the early adolescent vertical relationship (e.g., Russell, Pettit, & Mize, 1998).

Exiting statements and delinquency

In regard to exiting statements and perceived delinquency symptoms the results, as shown in Table 4.3, demonstrate a positive and significant relationship for only the early adolescent males and, to a lesser degree, the early adolescent females. These results support our first hypothesis suggesting that a destructive conflict resolution style of exiting statements should be strongly associated to adolescent behavioral problems in early adolescence, the age-period with the highest prevalence of parent–adolescent conflicts, than in late adolescence. These findings are in agreement with the results of previous studies which have found a strong relation between early adolescent delinquency and high prevalence of parent–child conflicts, as well as the use of ineffective conflict resolution styles in conflicts these adolescents have with their parents (e.g., Jaffee & D'Zurilla, 2003; Rubenstein & Feldman, 1993).

Exiting statements and adolescent problem behavior

When the abovementioned is taken together, it becomes clear that the associations between exiting statements and GAD symptoms as an internalizing problem behavior, and exiting statements and delinquency symptoms as a externalizing problem behavior, have divergent age- and sex specific patterns and, hence, different explanation. Exiting statements and self-rated GAD symptoms are strongly related for late adolescent females. Studies have found that GAD usually appears before mid-adolescence (e.g., Comer & Kendall, 2004; Masi et al., 2004) and continues to increase through late adolescence (Rapee, 2001). Additionally, GAD seems to be more common in females than in males (e.g., Cohen et al., 1993; Hale, Raaijmakers, Muris, & Meeus, 2005; Keller et al., 1992). A recent longitudinal study has found that the increase of GAD in adolescence mainly applies to adolescent females (Hale, Raaijmakers, Muris, Van Hoof, & Meeus, 2008). Late adolescent females have a tendency to be more sensitive to interpersonal relationships than early adolescent females and adolescent males (Hale, Engels, & Meeus, 2006; Hankin & Abramson, 2001). The difficulties of late adolescent females with GAD symptoms and their parents in resolving parent–adolescent conflicts in constructive ways, even in horizontal and egalitarian parent–adolescent relationship, suggest that the relationship is problematic over time.

The relationship between exiting statements and perceived delinquency symptoms is especially strong in early adolescent males. Early adolescence is characterized as an age-period with a high prevalence of parent–adolescent conflicts and frequent delinquent problem behavior on the part of males (e.g., Gorman-Smith & Loeber, 2005; Offord, Adler, & Boyle, 1986). Additionally, the use of non-constructive conflict resolution styles often occurs in early adolescence (e.g., Russell, Pettit, & Mize, 1998). According to the coercion theory (e.g., Granic & Patterson, 2006) coercive interactions are a fundamental behavioral mechanism between parent and adolescent by which delinquent behavior emerges in pre-adolescence and early adolescence; the age-period with a high prevalence of parent–adolescent conflicts (e.g., Arnett, 1999; Laursen, Coy, & Collins, 1998; McGue, Elkins, Walden, & Iacono, 2005; Pinquart & Silbereisen, 2002). This might explain why the incompetence of early adolescent males and their parents to solve parent–adolescent conflicts in a constructive way seems to be especially associated with delinquency in early adolescence.

Possible treatment implications

The results of this study have practical implications for treatment of late adolescent females with GAD symptoms from the general population and their parents, as well as for preventive interventions for early adolescent males with delinquency symptoms and their parents. With respect to late adolescent females with GAD symptoms,

recently the American Academy of Child and Adolescent Psychiatry issued a statement that the Multimodal Treatment Approach (AACAP, 2007) should be the first choice in treating adolescents with anxiety syndromes. Reviews of specific GAD treatment outcome research indicated that Cognitive Behavior Treatment (CBT) as a part of the Multimodal Treatment Approach is superior to other treatment conditions (e.g., Albano & Kendall, 2002; Borkovec & Ruscio, 2000; Chambless & Gillis, 1993). However, several studies suggest that for older youth the integration of CBT with a family component (Southam-Gerow et al., 2001) or CBT in a combination with interpersonal therapy (Borkovec, Newman, Pincus, & Lytle, 2002) is advisable. In such a systemic orientated context attention should be paid to restructuring the adolescents' perception of the parent–adolescent relationship and to the theme of conflict resolution in the family. This is important since it is known that late adolescent females with GAD symptoms persistently worry about the quality of their relationships (Hale, Engels, & Meeus, 2006; Hankin & Abramson, 2001) and exiting statements of the parent–adolescent relationship and GAD are strongly related for late adolescent females.

Our results also have implications for interventions concerning early adolescent males with delinquent behavior and their parents. Since the delinquency behaviors many times have a direct effect on others, the parents of the adolescent are also held responsible. Hence, several researchers have advised that Parent Management Training (PMT) may be the best course of action (e.g., Brestan & Eyberg, 1998; Carr, 2000; Hipwell & Loeber, 2006; Kazdin, 2000). PMT is a well-documented and evaluated treatment for delinquency symptoms of pre- and early adolescents. PMT has the aim to improve the quality of positive parenting skills and, indirectly, help to improve delinquent child behavior (Nock, 2003). Based on our results, within PMT, attention should be given to conflict resolution styles of adolescents and parents in the context of conflict situations in early adolescence.

Limitations

In terms of the limitations of this study, it should be first noted that this explorative study employed only correlations in a cross-sectional dataset. Hence it is not possible to determine whether the use of exiting statements, self-rated GAD symptoms or self-rated delinquency symptoms develop or diminish over time, nor can the direction of the relationship between exiting statements and adolescent GAD symptoms and exiting statements and delinquency symptoms be determined. Future longitudinal studies should be conducted to examine these observed relationships.

Secondly, when interpreting the results, it is important to bear in mind that exiting statements, GAD and delinquency were assessed by the self-report method. When we refer, for instance, to GAD symptoms or delinquency symptoms, we are speaking

of self-rated GAD symptoms or self-rated delinquency. This should not be confused with an actual clinical diagnosis of an adolescent anxiety or delinquency disorder. The use of multiple self-report measures also leads to associations due to shared variance in responses. Future studies may do well to not only investigate conflict resolution as an individual characteristic of the adolescent, but also additionally focus on conflict resolution as a characteristic of a specific adolescent–parent dyad and/or triad with interactions between the conflict resolution styles of adolescents and parents (Van Doorn, Branje, & Meeus, 2008).

It should be noted that while the conflict resolution style exiting statements was investigated (i.e., the expression of the adolescents' desire to minimize or end the contact with his or her parents and no longer consider his or her parents as parents), how the relationship changed as the result of the conflict resolution style exiting statements or if the adolescent really detached from the relationship has not been directly assessed. Hence these findings are a reflection of the adolescents' perception of their relationship with their parents. The overall use of the conflict style exiting statements seemed to be rather low, probably due to the particular nature of the items. The items of the other conflict resolution styles (Kurdek, 1994) demonstrate statements about specific behavior showed within the generally accepted context of the parent–adolescent relationship. The items of the 'exiting statements' construct, on the other hand, are probably a much less employed conflict style in parent–adolescent interactions and this is reflected in the low means levels.

In this explorative study the concept of the conflict resolution style exiting statements consists of the expression of the adolescents' desire to minimize or to end the relationship with his or her parents and to consider his or her parents no longer as parents. In future studies it should be interesting to investigate how the relationship changed as a result of the use of the conflict resolution exiting statements or if the adolescent really detached from the relationships with his or her parents.

In this study attention is only given to both parents as a unit, rather than focusing attention on father and mother separately. It is possible that adolescent males and females respond in a different way to their mothers and fathers. Additionally, mothers and fathers might respond in different ways to their adolescent males or females.

A final limitation of our study is that findings were characterized by small effect sizes (Cohen, 1992). However, in the context of this study we concur with the observation of Prentice and Miller (1992) that small effects can be impressive if they are of theoretical importance. The results of this explorative study are theoretically relevant as a next step in conceptualizing the conflict resolution style of exiting statements and investigating the relationship between exiting statements and adolescent problem behaviors.

Summary

To conclude, the current study demonstrated that both adolescent age and sex moderated the relationship between exiting statements (i.e., the expression of the adolescents' desire to minimize or end the relationship with his or her parents and do not consider his or her parents as parents anymore), and GAD symptoms, as an internalizing problem behavior, and exiting statements and delinquency symptoms, as an externalizing problem behavior. The association between exiting statements and GAD symptoms was found to be strongest in late adolescent females. When late adolescent females and their parents have remarkable difficulties to resolve conflicts in even a horizontal and egalitarian relationship this goes together with high levels of adolescent GAD. The relationship between exiting statements and delinquency symptoms is significantly positive for early adolescent males. The problems of early adolescent males and their parents to solve their conflicts in a constructive way seem to be especially associated with delinquency symptoms in early adolescence, an age-period with a high prevalence of parent–adolescent conflicts. The findings of this study indicate for late adolescent females with GAD symptoms the need of specific attention to restructuring the adolescent perception of the parent–adolescent relationship and need for attending to conflict resolution in the family as part of the CBT in a Multimodal Treatment Approach. For early adolescent males with delinquency symptoms the results suggest that specific attention must be given to the conflict resolution styles of family members in the context of a Parent Management Training.

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Marital conflict, adolescent perception of parental marital conflict and Generalized Anxiety Disorder symptoms: Longitudinal reciprocal effects

Wijsbroek, S. A. M., Hale III, W. W., Van Doorn, M. D., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2011). Marital conflict, adolescent perception of parental marital conflict and Generalized Anxiety Disorder symptoms: Longitudinal reciprocal effects. *Manuscript submitted for publication*.

Abstract

This study examined how marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and adolescent self-reported Generalized Anxiety Disorder (GAD) symptoms were related to each other longitudinally. In this three-year multi-informant study 327 adolescents (M = 14.23 years, SD = 0.52) and their parents in two-parent families from the Dutch general population participated. A structural equation model was conducted to analyze the direction of effects between marital conflict, adolescent perception of parental marital conflict and adolescent self-reported GAD symptoms. The findings of this study demonstrated, although there was no direct significant effect of marital conflict on adolescent GAD symptoms and of adolescent GAD symptoms on marital conflict over time, the significance of the adolescent *perception* of parental marital conflict in explaining the relationship between marital conflict and adolescent self-reported GAD symptoms. The important role of adolescent perception is in agreement with results of previous studies that found that marital conflicts only affect adolescent's general anxiety symptoms if the adolescent perceives the parental marital conflicts as negative.

Introduction

Research into adolescent Generalized Anxiety Disorder (GAD) symptoms has been receiving increasing attention since it is one of the most commonly occurring adolescent anxiety disorders (Cartwright-Hatton, McNicol, & Doubleday, 2006; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Rapee, 1991; Verhulst, Van der Ende, Ferdinand, & Kasius, 1997). Recent prevalence studies noted that GAD symptoms tend to increase during adolescence (Hale, Raaijmakers, Muris, van Hoof, & Meeus, 2008; Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009). Furthermore, cross-cultural studies have borne out the findings of this increase of GAD symptoms during adolescence (Hale, Crocetti, Raaijmakers, & Meeus, 2010). However while intrapersonal social factors that might explain this increase are well known (i.e., the adolescent's perception of an interaction), the interpersonal social factors (i.e., the other actor's perspective of the interaction) that explain this increase are less known. It is for this reason that research into interpersonal social factors that may play a role in the development of adolescent GAD is necessary.

An important theme of interpersonal social factors related to adolescent GAD symptoms is the relationship adolescents have with their parents. Adolescents with GAD symptoms generally perceive social interactions with others, such as their parents, as worrisome and hence tend to perceive these interactions as negative (e.g., Hale, Engels, & Meeus, 2006; Muris & Merckelbach, 1998; Rapee, 1997; Warren & Sroufe,

2004; Weems & Costa, 2005; Weems & Stickle, 2005; Westenberg, Drewes, Siebelink, & Treffers, 2004).

These social interactions can be interactions that the adolescent actively has with another or it can be interactions the adolescent passively observes between two significant others in the adolescent's life. In respect to the latter, conflicts the adolescents' parents have with one another can also be perceived by adolescents with GAD symptoms as worrisome. Previous studies have demonstrated a significant relationship between parental marital conflicts and the adolescent's general mental health (e.g., Buehler et al., 1997; Crockenberg & Langrock, 2001; Cummings & Davies, 1994; Grych, Fincham, Jouriles, & McDonald, 2000). In addition, several studies have demonstrated a significant association between perceived parental marital conflict and specific mental health issues, such as adolescent anxiety disorder symptoms (e.g., Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006; Grych & Fincham, 1993; Laursen, 1993; Rhoades, 2008).

The aforementioned studies have focused on anxiety as a general internalizing problem behavior and not on specific DSM-IV-TR (American Psychiatric Association, 2000) anxiety disorder symptoms, such as adolescent GAD symptoms. In the current study we have chosen to focus on GAD symptoms in particular. In many previous studies broader definitions of anxiety have been used without referring to specific DSM-IV-TR (APA, 2000) anxiety disorder symptoms, or categorization of 'internalizing problem behaviors' has been used (Hale et al., 2008) which is a combination of selected DSM-IV-TR anxiety disorder symptoms and depressive disorder symptoms taken together. This makes it difficult to distinguish exactly which anxiety disorder symptom is being studied and whether these studies are relevant to a specific anxiety disorder, such as GAD. An important reason to study specific DSM-IV-TR disorder symptoms is that researchers have found strong evidence that anxiety symptoms of children and adolescents cluster into DSM anxiety disorders as opposed to a broad category of internalizing symptoms (e.g., Hale et al., 2008; Kendall & Warman, 1996; Spence, 1997).

However, only examining the adolescent's perception of negative family interactions may leave out other aspects that may affect the adolescent's GAD symptoms. According to the family systems perspective (e.g., Minuchin, 1985; Sameroff, 1994) it is important to approach the adolescent as embedded in a family system, as opposed to examining the adolescent as "an island unto himself". Within the context of the family system perspective, the study of adolescent GAD symptom development is not complete with only the adolescent perception of parenting behaviors (Hale et al., 2006) but should also contain the parents' own perspective of their conflict with one another (e.g., Fincham, 1998). Previous studies have found that the parents' own perspective of their marital conflicts enhances adolescent anxiety development (e.g., Cummings et al., 2006). It is clear that raising an adolescent with anxiety symptoms requires more

parental efforts and consultation between the parents. Recently, empirical evidence has found anxiety symptoms as perceived by adolescents to be a driving influence on important parenting characteristics, such as parental control, over time (Wijsbroek, Hale, Raaijmakers, & Meeus, 2011). Adolescents expressing anxiety symptoms may help to illuminate the different views the parents hold on parenting and/or create tension between the parents due to a lack of time and space for the parents to have time together (with this time and space being now devoted to the adolescent with anxiety symptoms), which, in turn, may instigate or strengthen marital conflicts (e.g., Bögels & Brechman-Toussaint, 2006).

In light of the aforementioned findings it would appear that problematic interactions in the family household, specifically parental martial conflict, and adolescent GAD symptoms could influence one another negatively. The question still remains as to exactly how marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and adolescent self-reported GAD symptoms are related to each other over time.

However, no previous study has yet examined the effects of the parents' own perspective of their conflict with one another, parental marital conflict as perceived by adolescents and the level of perceived adolescent GAD symptoms or the effects each has on one another. Hence, the present study will be the first to address these relationships longitudinally. We investigated the direction of effects in the relationship between adolescent variables and parental variables by using the most researched direction-of-effect models for all interpersonal interactions like parent-adolescent interactions (see: Branje, Hale, & Meeus, 2008; Lollis & Kuczynski, 1997). As noted by these authors, there are three direction-of-effect models. The first model, the parent effect model, refers to specific parental behaviors influencing individual adolescent problem behavior. The second model, the child effect model suggests that a child's behaviors are influential to parental behaviors. And the third model, the reciprocal effect model, highlights the bi-directionality of effects in which children and parents influence each others' behaviors.

Based on the aforementioned findings, the definitive aim of the present study was to address the following research question: How are marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and adolescent self-reported GAD symptoms related to each other over time? Since this relationship between marital conflict, parental marital conflict as perceived by adolescents and adolescent self-reported GAD symptoms has not been previously investigated in a longitudinal design, the aforementioned relationships will be examined in an explorative fashion.

Method

Participants

Participants in this study came from the family sample of the longitudinal study CONflict And Management Of RElationships (CONAMORE; Meeus et al., 2004). Data were collected annually for both parents and adolescents with a one-year interval between each of the three waves. The adolescent population was composed of 327 adolescents. Of the adolescents that participated in the family sample, 139 were boys (48.6 %) and 168 girls (51.4 %). Sample attrition was 1.2% across the three waves. Incidental missing values were estimated in SPSS, using the EM procedure.

All adolescents and their parents were Dutch, adolescents and parents from ethnic minorities were not included in this sample. The mean age of the adolescents at the beginning of this study was 14.23 years (ranging from 12 to 16 years, *SD* = 0.52). The mean age of the fathers and mothers was respectively 47.8 years (ranging from 36 to 67, *SD* = 5.05) and 45.2 years (ranging from 35 to 58 years, *SD* = 4.25). In the national population the mean age of the fathers and the mothers of 14 years old adolescents was respectively 48.4 years and 45.3 years (Netherlands Central Bureau of Statistics, 2011). In the current sample 98.6 % of the adolescents lived with both parents whereas in the Netherlands there is a relatively stable percentage, 75%, of children and adolescents living in families with both parents (Netherlands Central Bureau of Statistics, 2008).

Procedure

Before the study, both adolescents and their parents received written information and, if the adolescent wished to participate, were required to provide written informed consent. Interviewers visited the schools and asked participating adolescents to gather in classrooms to fill out a questionnaire. Interviewers also visited the families at home. During these home visits, adolescents completed an additional questionnaire and both parents also completed a questionnaire. The adolescents and their parents were instructed to answer the questions independent from each other. Results were processed anonymously. Each wave, families received € 27, - for participating and adolescents received an additional amount of € 10, - for participating at school. The research assistants conducted the data entry to insure that the data remained anonymous to the researchers.

Measures

Marital conflict

To assess marital conflict, conflicts were identified using an abbreviated list of 16 topics adapted from the 44 topics of the Issues Checklist (Prinz, Foster, Kent, &

O'Leary, 1979; Robin & Foster, 1984). The occurrence of conflicts was measured on a five-point Likert scale: (1) *never*, (2) *seldom*, (3) *sometimes*, (4) *often*, and (5) *always*. A sample item is: "Indicate how often you and your partner have had a conflict in the last week (the last seven days) concerning the following theme: 'difference in interpretation of ideas' ". Fathers identified the perceived conflicts with mothers, mothers identified the perceived conflicts with fathers. The 'marital conflict' scores in the current study consist of the mean scores of the reports of the mothers' and fathers' reports taken together. Factor analyses have been conducted separately for the fathers reporting their marital conflicts with the mothers (all loadings > .49) and for the mothers reporting their marital conflicts with the fathers (all loadings > .40) (Stevens, 1992). For both the mothers' and fathers' reports the factor analyses demonstrated a one-factor structure. In the present study, Cronbach's alphas across the waves were .84 to .87 for the marital conflicts scored by the fathers and .83 to .85 for the marital conflicts scored by the mothers.

Adolescent perception of parental marital conflict

To assess adolescents' perceptions of the frequency and content of parental marital conflict a five item scale (Larsen, Branje, VanderValk, & Meeus, 2007) has been used. The five items are: 1. "How often – as far as you know – do your parents argue about money?", 2. "How often – as far as you know – do your parents disagree?", 3. "Are your parents – as far as you know – dissatisfied about their relationship?", 4. "Do your parents – as far as you know – sometimes have serious conflicts?", and 5. "As far as you know, have your parents been thinking about ending their relationship anytime in the past year?". Adolescents supplied answers on a five-point Likert scale ranging from (1) *never* to (5) *always*. Factor analysis revealed a one factor structure. Loadings on the statements were all larger than .54. The internal consistency of the scale was good, with Cronbach's alphas across the waves from .79 to .82.

Adolescent GAD symptoms

The GAD subscale of The Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997, 1999) was used to assess GAD symptoms. The SCARED is a self-report questionnaire, designed for children and adolescents, that measures the occurrence of DSM-IV-TR anxiety disorder symptoms on a three-point Likert scale: (0) *almost never*, (1) *sometimes*, or (2) *often*. The GAD symptom dimension subscale consists of nine items. A sample item is: "I worry if others will like me". Reliability and construct validity of the SCARED are strong (Hale, Raaijmakers, Muris, & Meeus, 2005; Myers & Winters, 2002). Factor analysis of the GAD items showed a one-factor structure with all loadings larger than .47. In this study Cronbach's alphas for the GAD subscale across the waves were .83 to .84.

Results

The aim of the present study was to investigate how parental marital conflict as perceived by parents, parental marital conflict as perceived by adolescents, and the adolescents' GAD symptoms are related to each other longitudinally. The means and standard deviations on parental marital conflict, parental marital conflict as perceived by adolescents, and the adolescents' GAD symptoms are given in Table 5.1.

As can be seen in Table 5.2, there is a high stability of marital conflict between Time 1 and 2, between Time 2 and 3, and between Time 1 and 3 (r ranged from .70 to .76, all ps < .01). This high stability may account for the low predictive value of the other variables. The stability of parental marital conflict as perceived by adolescents was moderate to high (r ranged from .56 to .77, all ps < .01). In addition, the stability of the adolescents' GAD symptoms was also moderate to high (r ranged from .59 to .70, all ps < .01). Marital conflict and adolescents' perception of parental marital conflict were significantly related to each other concurrently at Time 1, Time 2, and Time 3 (r ranged from .28 to .38, all ps < .01). Also, the adolescents' perception of conflict and adolescents' GAD symptoms were significantly related at Times 1-3 (r ranged from .20 to .29, all ps < .01). Marital conflict and adolescents' GAD symptoms were not significantly related to each other at Times 1-3 (r ranged from .03 to .07, all ps *ns*). Table 5.2 further demonstrates that all cross correlations between marital conflict and parental marital conflict as perceived by adolescents were significant (r ranged from .24 to .41, all ps < .01). The same was true for all cross correlations between the adolescents' perception of parental marital conflict and GAD symptoms (r ranged from .21 to .29, all ps < .01). In contrast, no significant cross correlations were found for the relation between marital conflict and GAD symptoms (r ranged from .01 to .07, all ps *ns*).

To answer the research question, structural equation modeling has been conducted using AMOS (Arbuckle & Wothke, 2006). To evaluate the fit of each model, the Comparative Fit Index (CFI), the Normed Fit Index (NFI), and the Root Mean Square

Table 5.1 Means and standard deviations of marital conflict, adolescent perception of parental marital conflict, and adolescent self-reported generalized anxiety disorder symptoms

	Time 1		Time 2		Time 3	
	Mean	*SD*	Mean	*SD*	Mean	*SD*
Marital conflict	1.61	*(0.41)*	1.58	*(0.39)*	1.64	*(0.47)*
Adolescent perception of parental marital conflict	1.78	*(0.64)*	1.91	*(0.73)*	1.95	*(0.77)*
Adolescent self-reported generalized anxiety disorder symptoms	1.32	*(0.35)*	1.34	*(0.40)*	1.33	*(0.38)*

Table 5.2 Intercorrelations between marital conflict, adolescent perception of parental marital conflict, and adolescent generalized anxiety disorder symptoms at Times 1-3 (T1-T3)

	1	2	3	4	5	6	7	8	9
1. Marital conflict T 1	-								
2. Marital conflict T 2	.76**	-							
3. Marital conflict T 3	.70**	.72**	-						
4. Adolescent perception of marital conflict T1	.28**	.24**	.27**	-					
5. Adolescent perception of marital conflict T2	.41**	.37**	.37**	.58**	-				
6. Adolescent perception of marital conflict T3	.39**	.35**	.38**	.56**	.77**	-			
7. Adolescent generalized anxiety disorder T1	.07	.05	.04	.28**	.26**	.29**	-		
8. Adolescent generalized anxiety disorder T2	.04	.05	.01	.21**	.20**	.21**	.67**	-	
9. Adolescent generalized anxiety disorder T3	.05	.07	.03	.22**	.24**	.29**	.59**	.70**	-

** $p < .01$.

Error of Approximation (RMSEA) have been used. For values of CFI and NFI, values above .90 indicate acceptable fit and values above .95 indicate good fit (Hu & Bentler, 1999). RMSEA values up to .06 represent a close fit of the model (Kline, 2010).

The first model included Time 1 correlations between the three variables of interest and their stability paths with a one-year time interval (Model 1). While this model provided an acceptable fit to the data for the CFI and NFI, it did not provide a good fit to the data for the RMSEA ($\Delta\chi^2 = 149.27$, $\Delta df = 27$, $p = .00$; CFI = .92; NFI = .90; RMSEA = .12). In order to increase the fit, we included the stability paths with a two-year time interval (Model 2). Adding these stability paths significantly improved the model ($\Delta\chi^2 = 69.30$, $\Delta df = 3$, $p < .01$). In a subsequent model, Model 3, we tested whether including the correlated change paths at Time 2 and at Time 3 would significantly improve the model (Model 3). This was not the case ($\Delta\chi^2 = 8.54$, $\Delta df = 6$, $p > .05$) and therefore these paths have not been included in the subsequent models.

A new model (Model 4) was tested in which we included the cross paths with a one-year time interval between marital conflict and parental marital conflict as perceived by the adolescents to Model 2. Adding these paths significantly improved the fit statistics of Model 2 ($\Delta\chi^2 = 47.21$, $\Delta df = 4$, $p < .01$). We then added cross paths with a one-year time interval between adolescents' perception of parental marital conflict and GAD symptoms, which further improved the fit statistics of Model 4 ($\Delta\chi^2 = 13.05$, $\Delta df = 4$,

$p < .05$). Finally, we tested a new model (Model 5) which included the cross paths between marital conflict and the adolescents GAD symptoms to examine whether this inclusion would significantly improve Model 4. This was not the case ($\Delta\chi^2 = 0.96$, $\Delta df = 4$, $p > .05$) and therefore these cross paths have not been included in our final model. Thus, Model 4 was the final model and is presented in Figure 5.1. The final model provided an excellent fit to the data ($\Delta\chi^2 = 19.72$, $\Delta df = 16$, $p = .23$; CFI = 1.00; NFI = .99; RMSEA = .03).

In Figure 5.1 the maximum likelihood results of the coefficients are presented as standardized estimates for the cross paths of the aforementioned variables. Marital conflict at Time 1 and Time 2 was significantly related to the adolescents' perception of parental marital conflict at Time 2 and Time 3, respectively ($\beta = .28^{**}$ and $\beta = .11^{**}$, all ps $< .01$). Thus, higher levels of marital conflict, as reported by parents, were related to higher levels of perceived parental marital conflict by adolescents one year later. Adolescents' perception of parental marital conflict at Time 2 was in turn significantly related to adolescents' GAD symptoms at Time 3 ($\beta = .08^{**}$, $p < .05$). In other words, when adolescents perceived higher levels of parental marital conflict at Time 2, the adolescents reported higher levels of GAD symptoms one year later. Unexpectedly, adolescents' perception of parental marital conflict at Time 1 was not significantly related to the adolescents' GAD symptoms at Time 2 ($\beta = .03$, *ns*). Furthermore, the adolescents' GAD symptoms at Time 1 were significantly related to

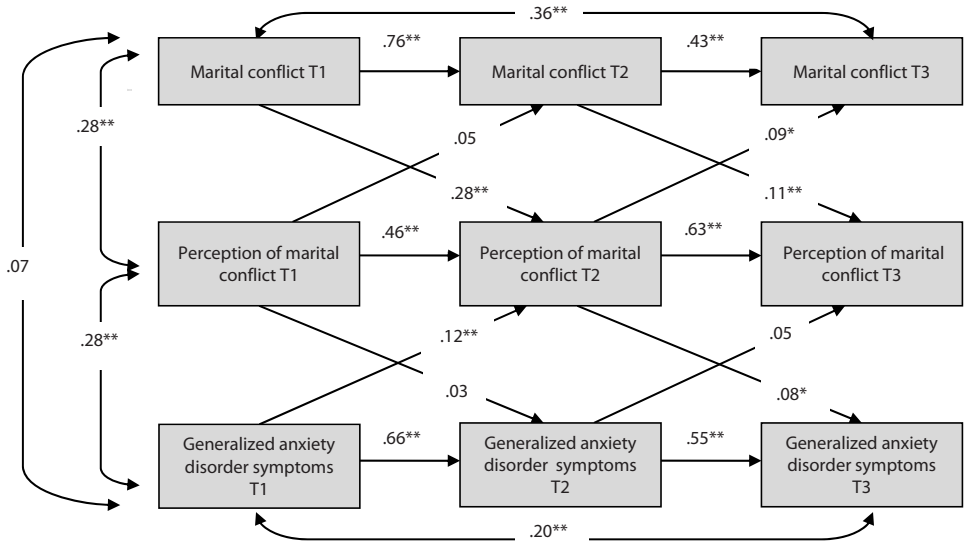

Figure 5.1 Initial correlations, stability paths and cross-path predictions of marital conflict, adolescent perception of parental marital conflict, and adolescent generalized anxiety disorder symptoms.

the adolescents' perception of parental marital conflict at Time 2 (β = .12**, p < .01), indicating that higher levels of adolescents' GAD symptoms were related to higher levels of adolescents' perception of parental marital conflict one year later. Yet, this relation has not been found between the adolescents' GAD symptoms at Time 2 and the adolescents' perception of parental marital conflict one year later (β = .05, *ns*). In addition, it was found that the adolescents' perception of parental marital conflict at Time 2 was significantly related to marital conflict at Time 3 (β = .09*, p < .05). Thus, higher levels of adolescents' perceived parental marital conflict were related to higher levels of marital conflict, as reported by their parents, one year later. This relation was found to be not significant for the adolescents' perception of parental marital conflict at Time 1 and marital conflict at Time 2 (β = .05, *ns*).

Discussion

The current multi-informant three-wave study explored the longitudinal relationships between marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and self-reported adolescent GAD symptoms. The findings of this study demonstrated, although there was no direct significant effect of marital conflict on adolescent GAD symptoms and of adolescent GAD symptoms on marital conflict over time, the significance of adolescent *perception* of parental marital conflict in explaining the relationship between marital conflict and adolescent self-reported GAD symptoms. These results confirmed the findings of the initial correlations on Time 1 of the same model and, while this is the first study of adolescent GAD symptoms and marital conflict, our findings agree with previous longitudinal studies of general problem behaviors that also found a lack of a direct effect of marital conflict on problem behaviors as perceived by adolescents (e.g., Grych, Harold, & Miles, 2003; Harold & Conger, 1997).

Although in the current study specific GAD symptoms and marital conflict as perceived by parents have been investigated, the role of adolescent perception of parental marital conflict is in agreement with results of previous studies, that found that parental marital conflicts only affects an adolescent's general anxiety symptoms if the adolescent perceives the marital conflicts as negative (e.g., El-Sheikh & Hargar, 2001; Kitzmann & Cohen, 2003).

Overall, marital conflict, adolescent perception of parental marital conflict and adolescent GAD symptoms can be explained by a bi-directional model (Branje et al., 2008; Lollis & Kuczynski, 1997). In respect to the specific aspects of this bi-directional model, the finding that higher levels of marital conflict predict adolescent perception of parental marital conflict one year later is in agreement with findings of previous cross-sectional (e.g., Grych & Fincham, 1993; Grych, Seid, & Fincham, 1992; Laursen, 1993) and longitudinal studies (e.g., Cummings, Goeke-Morey, & Papp, 2003) that

suggest that adolescents that perceived high levels of intensity and frequency of parental marital conflicts also report high levels of internalizing problem behaviors, such as anxiety (e.g., Cummings et al., 2003). In addition, the fact that high levels of marital conflict predict adolescent perception of parental marital conflict one year later could be explained by the idea that adolescents have experience of cumulative exposure to parental marital conflicts (Schoppe-Sullivan, Schermerhorn, & Cummings, 2007) and therefore become increasingly aware of such conflicts (Ha, Overbeek, Vermulst, & Engels, 2009).

These high levels of parental marital conflict as perceived by adolescents are, in turn, predictive of adolescents' GAD symptoms. This can be explained by the role of intolerance of uncertainty in the development and maintenance of GAD symptoms (e.g., Behar, Dobrow Dimarco, Hekler, Mohlman, & Staples, 2009; Dugas, Buhr, & Ladouceur, 2004; Laugesen, Dugas, & Bukowski, 2003). According to the intolerance of uncertainty model, adolescents' perception of uncertain and ambiguous situations, such as high levels of perceived parental marital conflict, can lead to the experience of emotional stress and chronic worry in response to these situations (Behar et al., 2009; Dugas & Koerner, 2005). While the emotional stress might be seen as a primary response, chronic worry (a central characteristic of GAD) can be seen as a coping mechanism to deal with the emotional stress. Adolescents might be particularly vulnerable to developing chronic worry since during adolescence the capacity for worry increases with the growth in abstract thinking (Ellis & Hudson, 2010). While in the short-term this coping style (i.e., worrying) may help to reduce the emotional stress, by giving the adolescent a feeling of control by being able to mentally manipulate the situation, in the long-term this actually increases the emotional stress when the adolescent recognizes that his or her mental manipulations do not change the external environment (e.g., the parental marital conflicts) (Behar et al., 2009; Borkovec & Roemer, 1995; Davey, Tallis, & Capuzzo, 1996; Laugesen et al, 2003).

As the findings of the current study demonstrate, the effects between marital conflict, adolescents' perception of parental marital conflict and adolescents' self-reported GAD symptoms have an effect on one another. Specifically, adolescents with higher levels of GAD symptoms perceived higher levels of parental marital conflict, which in turn is predictive of the marital conflicts, and vice versa. It is conceivable that these adolescents are more sensitive to negative situations such as parental marital conflicts. This finding is in agreement with research suggesting the existence of systematic biases in the ways individuals with GAD symptoms perceive and interpret ambiguous events, report threat-related automatic thoughts and process threat-related information (Beck & Clark 1997).

In addition, that high levels of adolescent perception of parental marital conflict lead to marital conflict one year later can be interpreted as parents having more

marital conflicts as a reaction to the adolescent's GAD symptoms. This finding is in agreement with empirical findings that adolescents' problem behaviors influence the marital relationship in general (Schermerhorn, Cummings, DeCarlo, & Davies, 2007; Schermerhorn, Chow, & Cummings, 2010).

Limitations

The present study provides more insight into the relationship between adolescent GAD symptoms, marital conflict as perceived by parents, and parental marital conflict as perceived by adolescents. The study also has its limitations. First, the research has been conducted with a sample of adolescents from the general population. While it has been shown that research in general populations can be useful for study in clinical settings (e.g., Hale, 2006), a clinical adolescent sample could have been used to explore whether these findings of adolescents from the general community also apply to adolescents with a diagnosis of GAD. In this same light, it is important to consider that adolescent GAD symptoms were assessed by adolescent self-report in the form of questionnaires and should not be confused with a clinical DSM-IV-TR diagnosis.

Second, we analyzed the adolescents as one group instead of analyzing different age and gender groups. In regard to age the distribution of the sample (M = 14.23 years, SD = 0.52) does not allow to split in two or more groups. Testing sex as a moderator demonstrated no differences between the adolescent boys and the girls ($\Delta\chi^2$ = 6.6, Δdf = 8, $p < .05$). However, it also should be noted that this study employed a multi-informant perspective in collecting data on parental marital conflict, something that is not always employed in previous studies.

Third, there are limitations to the choice of the measurement of frequency and content of parental marital conflicts. Studies emphasize to look beyond frequency of conflict towards the specific tactics, characteristics of marital conflicts and emotions exhibited during marital disagreements (e.g., Cummings et al., 2003; Cummings et al., 2006).

A suggestion for future research is to measure the parents' awareness of adolescents' knowledge of parental marital conflict. It is conceivable that parents that are aware of their adolescents' perception of their marital conflict feel allowed to openly present their marital conflicts as opposed to hiding it as they might be more inclined to do so with younger children (Ha et al., 2009).

Summary

To conclude, this multi-informant longitudinal study demonstrated a bi-directional effect model over time to explain the relationships between marital conflict as perceived by parents, parental marital conflict as perceived by adolescents and self-reported adolescent GAD symptoms. In addition, the findings revealed the significance of

adolescent perception of parental marital conflict in explaining the relationship between marital conflict and adolescent self-reported GAD symptoms, although there was no direct significant effect of marital conflict on adolescent GAD symptoms and of adolescent GAD symptoms on marital conflict.

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General discussion

The aim of this dissertation was to investigate the relationships between symptoms of Generalized Anxiety Disorder (GAD) experienced by adolescents from the general population and problematic interactions in the family, the latter being defined as particular problematic parenting characteristics and problematic family relationships. This general discussion presents the main results of the four empirical studies described in Chapters 2, 3, 4 and 5 and then integrates the implications of these results and suggests future research.

Summary of the main findings

Measurement of adolescent GAD symptoms

The first study, presented in Chapter 2, investigated the five-factor structure of the Screen for Child Anxiety Related Emotional Disorders (SCARED: Birmaher et al. 1997, 1999) for Dutch adolescents in the general population. The five SCARED subscales each represent a specific anxiety disorder symptom dimension. Four of the subscales represent anxiety disorder symptom dimensions recognized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). These are Panic Disorder (PD), Social Phobia (SP), Generalized Anxiety Disorder (GAD) and Separation Anxiety Disorder (SAD). The last subscale measures School Anxiety (SA; or school refusal). Although this is a serious problem in childhood and adolescence (e.g., Fremont, 2003), it is not a DSM-IV-TR anxiety disorder.

This study showed that the five-factor structure, with each factor corresponding to one anxiety disorder symptom dimension, applied not only to the general adolescent population, but was equally valid for adolescent males and females, early and middle adolescent groups and Dutch and ethnic minority groups. Overall, the SCARED subscale scores of the adolescent subgroups differed from each other, in agreement with findings of previous studies of adolescent anxiety disorder symptom dimensions. This study confirmed the usefulness of the SCARED and its various subscales when applied to the general adolescent population. Consequently, the GAD subscale of the SCARED was employed in the subsequent studies presented in this dissertation.

Problematic parenting characteristics: parental control

The study presented in Chapter 3 investigated the direction of effects between perceived parental behavioral control, psychological control, and self-reported adolescent GAD symptoms over time.

With regard to the direction of effects in parent-adolescent interactions (Branje, Hale, & Meeus, 2008; Lollis & Kuczynski, 1997), the results of this study demonstrated an unequivocal unidirectional effect model, specifically a child effect model. Adolescents with GAD symptoms perceive their parents as becoming increasingly controlling over time.

In terms of the child effect model, adolescent GAD symptoms are more strongly and systematically associated with perceived parental psychological control than with behavioral control. Previous cross-sectional studies had found significant associations between psychological control and adolescent anxiety in general (Hale, Engels, & Meeus, 2006; Rapee, 1997). The current study thus confirmed theoretical suggestions that individuals with anxiety symptoms in general (Alloy & Riskind, 2006; Riskind, Williams, & Joiner, 2006) and individuals with GAD symptoms specifically (Beck & Clark, 1997; Riskind, Tzur, Williams, Mann, & Shahar, 2007) have a negative cognitive bias.

In early adolescents, the child effects were stronger for boys. In late adolescents, no difference was found between boys and girls. This finding is in partial agreement with a longitudinal study that showed that adolescent boys' bias to perceive parental behaviors such as parental control as negative decreases over time, while adolescent girls' sensitivity to perceived negative parental behaviors tends to increase (Hale, Engels, & Meeus, 2006).

These findings prompted the suggestion that treatment of adolescents with GAD symptoms and their families be modified to include specific attention to adolescent perception of parental control in parent-adolescent interactions. Another suggestion is to share this knowledge about adolescent perception with parents (and adolescents) during their psycho-education sessions.

Problematic family relationships: negative conflict resolution

The study presented in Chapter 4 investigated whether there was a relationship between adolescents' use of *exiting statements* (i.e., the expression of the adolescent' desire to minimize or end the contact with his or her parents) as a conflict resolution style in parent-adolescent conflicts on the one hand and adolescent GAD symptoms of early and late adolescent males and females from the general adolescent population on the other.

As expected, there was a positive relation between exiting statements and adolescent GAD symptoms. The results demonstrated higher levels of adolescent exiting statements to be significantly related to higher levels of adolescent GAD symptoms. This means that adolescents with GAD symptoms are inclined to use exiting statements as a conflict resolution style. This finding is in agreement with previous studies that showed that ineffective and destructive conflict resolution in parent-adolescent conflict is positively and significantly correlated to the internalization of adolescent problem behavior, such as adolescent GAD symptoms (e.g., Branje, Van Doorn, VanderValk, &

Meeus, 2009; Collins & Laursen, 1992; Rubenstein & Feldman, 1993; Tucker, McHale, & Crouter, 2003).

With reference to age and sex differences, the correlation between exiting statements and GAD symptoms was found to be strongest for late adolescent females. Severe difficulties in conflict resolution in the parent-adolescent relationship of late adolescent females were significantly related to high levels of adolescent GAD symptoms. These findings support the study's hypothesis that the parent-adolescent relationship during adolescence develops into a horizontal and egalitarian relationship (e.g., De Goede, Branje, & Meeus, 2009; Russell, Pettit, & Mize, 1998) in which the use of a negative conflict resolution style such as exiting statements becomes increasingly inappropriate.

Based on the findings of this study it is suggested that treatment of adolescent GAD symptoms focuses on adolescents' cognitive restructuring of their perception of their relationship with their parents. It is also recommended that adolescents be made aware of their use of this destructive conflict resolution style and through cognitive restructuring learn to apply healthier conflict resolution styles.

Problematic family relationships: parental marital conflicts

The study presented in Chapter 5 examined the longitudinal relationships between parents' perception of marital conflict, adolescent perception of parental marital conflict and adolescent GAD symptoms.

The findings of this study demonstrated, although there was no direct significant effect of marital conflict on adolescent GAD symptoms and of adolescent GAD symptoms on marital conflict over time, the significance of adolescent perception of parental marital conflict in explaining the relationship between marital conflict and adolescent self-reported GAD symptoms. This finding is in agreement with previous studies that found that parental marital conflicts only affect an adolescent's general anxiety symptoms if the adolescent perceives the marital conflicts as negative (e. g., El-Sheikh & Harger, 2001; Kitzmann & Cohen, 2003).

Overall, marital conflict, adolescent perception of parental marital conflict and adolescent GAD symptoms can be explained by a bi-directional model (Branje et al., 2008; Lollis & Kuczynski, 1997). As Figure 6.1 makes clear, marital conflict is a predictor of adolescent perception of marital conflict one year later and adolescent perception is a predictor of adolescent GAD symptoms in the following year. In turn, adolescent GAD symptoms are predictive of the perception of marital conflict one year later and adolescent perception is a predictor for marital conflict in the following year.

The finding that higher levels of marital conflict (as reported by the parents themselves) predict adolescent perception of parental marital conflict one year later is in agreement with findings of previous cross-sectional (e.g., Grych & Fincham,

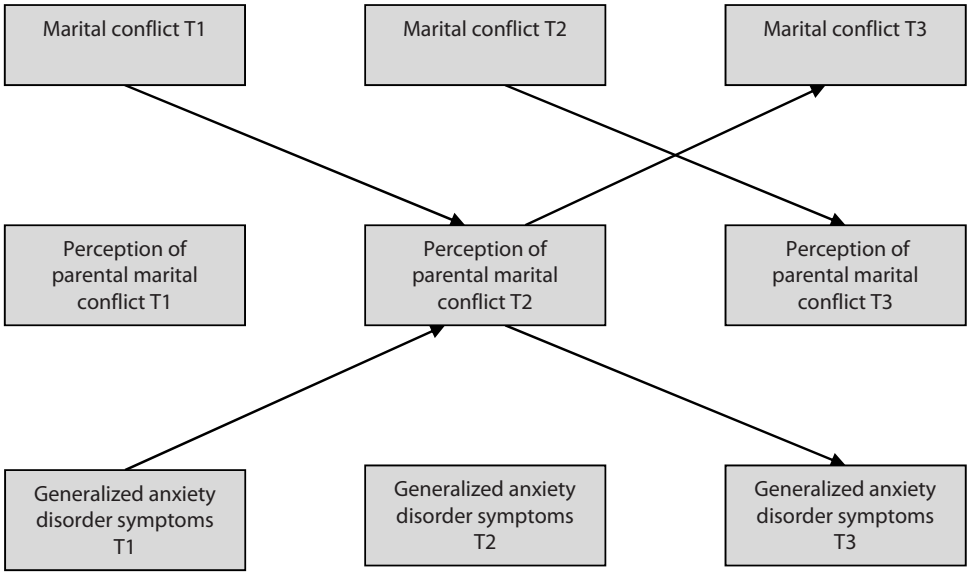

Figure 6.1 Significant effects between marital conflict, adolescent perception of parental marital conflict and adolescent GAD symptoms.

1993; Grych, Seid, & Fincham, 1992; Laursen, 1993) and longitudinal studies (e.g., Cummings, Goeke-Morey, & Papp, 2003). The fact that high levels of marital conflict predict adolescent perception of parental marital conflict one year later could be explained by the idea that cumulative exposure to parental marital conflicts (Schoppe-Sullivan, Schermerhorn, & Cummings, 2007) sensitizes adolescents to such conflicts and make them increasingly aware of such conflicts (Ha, Overbeek, Vermulst, & Engels, 2009).

High levels of adolescent perception of parental marital conflict are predictive of adolescent GAD symptoms. This can be explained by the role that intolerance of uncertainty plays in the development and maintenance of GAD symptoms (Behar, Dobrow Dimarco, Hekler, Mohlman, & Staples, 2009; Dugas, Buhr, & Ladouceur, 2004; Laugesen, Dugas, & Bukowski, 2003). In line with the intolerance of uncertainty model, adolescents' perception of uncertain and ambiguous situations, such as high levels of perceived parental marital conflict, can lead to emotional stress and chronic worry in response to such situations (Behar et al., 2009; Dugas & Koerner, 2005).

In addition, the inverse was also found to be the case (see Figure 6.1). Adolescents with higher levels of GAD symptoms perceived higher levels of parental marital conflict. This finding can be explained by previous research that has suggested that individuals with GAD symptoms tend to have a systematic negative cognitive bias in the way they

perceive and interpret ambiguous events, report threat-related automatic thoughts and process threat-related information (Beck & Clark, 1997). Hence, adolescents with strong GAD symptoms may be more sensitive to negative situations, such as parental marital conflicts, than other adolescents.

The finding that high levels of adolescent perception of parental marital conflict predict parental marital conflict one year later can be interpreted as parents having more marital conflicts in response to the adolescent's GAD symptoms. This is in agreement with empirical findings that adolescent problem behaviors influence parental marital relationships in general (Schermerhorn, Cummings, DeCarlo, & Davies, 2007; Schermerhorn, Chow, & Cummings, 2010).

Altogether, the findings of this study suggest that treatment of adolescent GAD not only explicitly address possible negative cognitive biases on the part of the adolescent, but also the possible negative effect of such bias on marital conflict and vice versa. Hence inclusion of the adolescent's parents in the treatment of adolescent GAD seems warranted.

An integration of the findings

The results of the four studies discussed in this dissertation contribute to the existing knowledge about adolescent GAD symptoms and problematic interactions in the family.

Figure 1.1 in the general introduction in Chapter 1 showed the main themes of this dissertation. Chapter 2 examined the psychometric properties of the GAD scale of the Screen for Child Anxiety Related Emotional Disorders (SCARED). This study found that adolescent girls scored significantly higher on GAD symptoms than adolescent boys and that middle adolescents scored higher on the GAD subscale than early adolescents.

Chapters 3 through 5 studied the relationship between adolescent GAD symptoms and problematic interactions in the families of these adolescents. Problematic interactions were defined as problematic parenting on the one hand (Chapter 3) and problematic family relations on the other (Chapters 4 and 5). With respect to parenting characteristics, adolescents with GAD symptoms perceive their parents as becoming increasingly controlling over time (Chapter 3). With regard to family relations it was found that adolescents with GAD symptoms are inclined to use exiting statements as a conflict resolution style in parent-adolescent conflicts (Chapter 4). Chapter 5 showed that adolescents' perception of marital conflict plays an important role in explaining the relationship between marital conflict and adolescent GAD symptoms.

The findings of these empirical studies support the expectation that adolescent GAD symptoms affect problematic interactions in the family.

In terms of age and sex differences, there are differences between early and late adolescents and between boys and girls in their interactions with the family. Early adolescent boys with GAD symptoms are more inclined to perceive their parents as increasingly controlling than girls (Chapter 3). On the other hand, late adolescent girls with strong GAD symptoms are most likely to use exiting statements as a conflict resolution style in the parent-adolescent relationship (Chapter 4). However, no sex differences came to light in early adolescents' perception of marital conflict in relation to marital conflict and adolescent GAD symptoms (Chapter 5).

The age and sex differences in relation to parenting are in agreement with previous findings that show that a negative cognitive bias on the part of adolescents with strong GAD symptoms influences adolescents' perception of negative parental behaviors, such as parental control (Hale et al., 2006). The age and sex differences that were found in regard to family relations are in agreement with the hypothesis that the use of destructive conflict resolution styles is less appropriate in a more horizontal and egalitarian parent-adolescent relationship in late adolescence than in early parent-adolescent relationships that are more vertical and authoritarian (Russell et al., 1998).

Adolescent GAD symptoms and negative cognitive bias

An overarching theme of the studies in this dissertation is adolescents' 'perception of interactions' as an important factor in the relationship between adolescents with GAD symptoms and problematic interactions in the family.

The studies reveal the importance of perception in adolescents with GAD symptoms, which seems to fit well with the notion of a negative cognitive bias (Ingram, 2003; Koerner & Dugas, 2008; Riskind & Alloy, 2006) in individuals with anxiety symptoms, as described by cognitive models of anxiety (Beck & Clark, 1997; Riskind & Alloy, 2006). Negative cognitive bias refers to a detrimental cognitive set of beliefs and attitudes that heightens the risk of developing an emotional disorder (Kraemer et al., 1997). For GAD, specific negative thoughts and cognitions are identified as the primary pathogenic mechanism underlying the development and maintenance of GAD, and more specifically the most salient symptom of GAD: worry (Behar et al., 2009). Two specific thought processes and cognitions are significantly related to adolescent GAD symptoms. One is the interpretative error of perceiving neutral, uncertain or ambiguous situations as dangerous and extremely stressful (Dugas & Koerner, 2005). This leads to the experience of chronic worry in response to this kind of situation. Such 'intolerance of uncertainty' seems significantly and strongly related to adolescent worry (Laugesen et al., 2003) and it has been suggested that worrying is used as a coping mechanism to avoid the intolerable uncertainty (Behar et al., 2009).

The second thought process is a meta-cognition identified recently by Wilson et al. (2011). Wilson et al. concluded that the meta-cognitive model of worry (Wells, 1995,

2005) is applicable to adolescents in the general population. The meta-cognition of worry refers to a variety of both positive and negative beliefs about worry itself that adolescents with GAD hold (Prados, 2011). Positive beliefs about worry, such as 'worry helps to avoid or solve a problem', are activated by events that cause intrusive thoughts and lead to worry about the specific event (Wilson et al., 2011). But when worrying creates a negative outcome, anxiety increases and negative beliefs about worry as being 'dangerous and uncontrollable', develop. These beliefs lead the adolescent to worry about worrying: this is 'meta-worry'.

In the studies presented in this dissertation, this interpretation of the negative thoughts and cognitions underlying adolescent GAD symptoms, and in particular worry, were based on self-reported behaviors. Future research of adolescent GAD symptoms and problematic interactions in the family might benefit from a design that not only investigates adolescents' and parents' perceptions of their own and each other behaviors, but also includes parents' and adolescents' worries and cognitions. Such a study would also address the need to study adolescent cognitions together with developmental and family interaction factors (Wilson et al., 2011). Adolescents' capacity to worry increases with cognitive maturation and their growing ability for abstract thinking (Ellis & Hudson, 2010). Therefore, age and sex differences should also be taken into account in such a study. Based on our findings about the relationship between adolescent GAD symptoms and family interaction factors, further research into the direction of effects is necessary to investigate how adolescent GAD worry, perception of behaviors and cognitions affect parental GAD worry, perception of behaviors and cognitions, and vice versa.

In addition, Bögels and Phares (2008) suggest differentiating between fathers' and mothers' interaction behaviors (as opposed to studying parents as a unit), and between various adolescent age and sex groups when investigating the direction of effects between parental interaction behaviors and adolescent anxiety symptoms. We suggest the same differentiation be applied to the study of adolescent GAD symptoms and problematic interactions in the family.

Treatment

The studies presented in this dissertation involved both adolescents and their parents. The studies discussed in Chapters 3 and 4 included adolescents' perceptions of their own and their parents' behaviors. The study in Chapter 5 was a multi-informant study and included the parents' own perspective. With regard to the direction of effects models, we found a child effect in the relationship between adolescent GAD symptoms and the parenting characteristic of parental control, and bi-directional effects in the relationships between marital conflict, adolescent perception of parental marital conflict and adolescent GAD symptoms. Until recently, it was assumed that a

parent effect model best explained the relationship between adolescent variables and parental variables. However, recent insights suggest that either a child effect model or a bi-directional effect model better explains the basis of adolescent anxiety disorder symptoms (Silverman, Kurtines, Jaccard, & Pina, 2009). The findings of the studies discussed in this dissertation support the latter.

Empirical findings with respect to the relationships between parental variables and adolescent variables can be used to substantiate interventions for adolescents with anxiety symptoms (e.g., Silverman et al., 2009). The clinical implications of our studies are twofold. Firstly, based on the child effects found for adolescents' perception of parenting characteristics, we would suggest paying specific attention to adolescents' perception of parental control in individual cognitive behavioral therapy (CBT) for adolescents with GAD symptoms. Similarly, parents of adolescents with GAD should be made aware of adolescents' tendency to perceive parental interaction behaviors with a negative cognitive bias. This knowledge could be imparted during psycho-education sessions for parents that form part of adolescent CBT (Southam-Gerow, Kendall, & Weersing, 2001). Secondly, in light of our findings about family relations, we also suggest active involvement of parents (especially of late adolescent girls) in CBT, focusing on conflict resolution in the family and the negative effect that parental marital conflict can have on adolescents' GAD symptoms. In the wake of recent CBT studies of child and adolescent anxiety, the issue of involving parents in the CBT treatment of children and adolescents with anxiety symptoms is a recent and actively discussed topic. In randomized clinical trials (e. g., Silverman, Pina, & Viswesvaran, 2008; Silverman et al., 2009) both individual adolescent CBT and CBT with active parent participation demonstrated significant positive treatment outcomes on child and adolescent anxiety.

Based on our findings, we recommend studying individual CBT and differentiated forms of parental involvement, based on direction of effect studies on adolescent GAD symptoms and problematic interactions in the family. Such studies will help increase our knowledge about effective clinical treatment.

Concluding remarks

This dissertation aims to contribute to understanding the relationship between adolescent GAD symptoms and problematic interactions in the family. Problematic interactions were divided into problematic parenting and problematic family relations. The first step was to investigate the Screen for Child Anxiety Related Emotional Disorders (SCARED: Birmaher et al., 1997, 1999) and its five-factor structure, with each factor corresponding to one of four DSM-IV-TR anxiety dimensions plus school anxiety. The first study confirmed the usefulness of the SCARED for the general

adolescent population. This study found that adolescent girls scored significantly higher on GAD symptoms than adolescent boys and that middle adolescents scored higher on the GAD subscale than early adolescents.

The second study looked at parenting characteristics and concluded that adolescents with GAD symptoms perceive their parents as becoming increasingly controlling over time. The third study explored family relations and found that adolescents with GAD symptoms were prone to use exiting statements as a means to resolve conflicts with their parents. The fourth study examined adolescents' perception of parental marital conflict. This study found that perception plays a pivotal role in explaining the relationship between marital conflict and adolescent GAD symptoms.

The findings of these studies are in line with the theoretical concepts of a negative cognitive bias underlying the adolescent GAD symptom of worrying. In addition, the child effects we found that explain the relationship between parental and adolescent interaction behaviors are in agreement with recent theories of adolescent GAD manifestation.

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Summary

Many adolescents suffer from anxiety. Research has shown that Generalized Anxiety Disorder (GAD; Diagnostic and Statistical Manual of Mental Disorders, DSM-IV-TR, APA, 2000) is one of the most common anxiety disorders found in adolescents today. Its main symptoms are disproportionate fear and anxiety (worrying) about work-related or school-related events or activities. Adolescents suffering from GAD symptoms have difficulty keeping fear and worries in check. This causes mounting stress and impairs their functioning in school and other social settings. GAD sufferers tend to worry about issues stemming from social relationships in their immediate surroundings. Their symptoms often manifest themselves in problematic interactions with close relatives. This dissertation examined the relationship between adolescent GAD symptoms and problematic interactions in the family.

The studies used data from longitudinal samples taken from the CONAMORE and RADAR-old projects. In CONAMORE, 1,313 adolescents filled out questionnaires for five consecutive years. In RADAR-old, 327 adolescents and their parents (both) filled out questionnaires for three consecutive years. The questions they answered dealt with anxiety symptoms, parental control, parental marital conflict and adolescents' conflict resolution styles.

Chapter 2 looked at the 'Screen for Child Anxiety Related Emotional Disorders' (SCARED) questionnaire and evaluated its psychometric characteristics when applied to a general adolescent population in the Netherlands. The SCARED is a self-assessment questionnaire intended to measure five symptom dimensions of anxiety, i.e. Panic Disorder, Social Phobia, GAD, Separation Anxiety Disorder and School Anxiety. The research findings supported the distinction into five symptom dimensions for the group of adolescents as a whole and for different age, gender and ethnic subgroups. These research findings confirmed the SCARED's suitability for measuring anxiety symptoms such as those associated with GAD in adolescents.

Chapter 3 focused on a longitudinal study into the interaction between GAD symptoms in adolescents on the one hand and parental psychological and behavioral control on the other. A reliable child effect model was established: adolescent GAD symptoms predicted adolescent perception of parental control one year later. Adolescents with GAD symptoms perceived their parents as increasingly controlling during their adolescence. Within this child effect model, a distinction can be made between two different types of perceived control. Adolescents with GAD symptoms tend to perceive a steeper and more systematic increase in parental psychological control than in parental behavioral control. In early adolescence, this difference was more pronounced for boys than for girls, in late adolescence there was no difference between boys' and girls' perception of the types of parental control.

Chapters 4 and 5 investigated the relationship between GAD symptoms and problematic interactions in family relationships. The study in Chapter 4 focused on

the relationship between GAD symptoms and the use of exiting statements as a conflict resolution style in parent-child conflicts. Exiting statements are statements that express the adolescent's wish to minimize or cut off contact with his or her parents. In late adolescence, when the parent-child relationship is becoming less hierarchical and more equal, girls in particular tend to use the ineffective and destructive conflict resolution strategy of exiting statements in arguments with their parents. Chapter 5 zoomed in on a longitudinal study into the mutual effects of parental marital conflict, the adolescent's perception of those conflicts and the adolescent's GAD symptoms. These effects can be explained using a bi-directional effect model. Although parental marital conflicts had no direct effect on GAD symptoms over time, adolescents' perception appeared to play a pivotal role in the relationship between these conflicts and GAD symptoms. Parental marital conflicts only affected adolescents' GAD symptoms when adolescents perceived the conflicts as negative.

In short, the studies in this dissertation confirm the hypothesis that GAD symptoms in adolescents contribute to problematic interactions in families. An overarching theme in these studies is the importance of adolescent perception in the relationship between these GAD symptoms and problematic interactions. This finding is in line with current theoretical concepts about negative cognitive perceptions underlying worrying, one of the main symptoms of GAD. The child effects established by these studies confirm recent theories about the development of GAD symptoms in adolescents.

Samenvatting
(Summary in Dutch)

Angst bij adolescenten is een wijdverbreid fenomeen. Gegeneraliseerde angststoornis (GAS; Diagnostic and Statistical Manual of Mental Disorders, DSM-IV-TR, APA, 2000) komt uit onderzoek naar voren als één van de meest voorkomende angststoornissen bij adolescenten. Buitensporige angst en bezorgdheid (ook wel piekeren genoemd) over een aantal gebeurtenissen of activiteiten als werk of schoolprestaties, vormen de kernsymptomen van GAS. Deze angsten en bezorgdheid zijn moeilijk in de hand te houden door de adolescent en leiden tot hoogoplopende stress en beperkingen in zijn of haar dagelijks functioneren. Adolescenten met GAS-symptomen blijken veelal te piekeren over thema's die samenhangen met sociale relaties in hun directe omgeving. De aanwezigheid van symptomen blijkt zich onder meer te manifesteren in de vorm van problematische interacties in het gezin, zowel binnen de opvoedingsrelatie als binnen de gezinsrelaties. In dit proefschrift werd de relatie tussen GAS-symptomen bij adolescenten en problematische interacties in het gezin nader onderzocht.

Voor het onderzoek werden data gebruikt uit de longitudinale steekproef van het CONAMORE project en het RADAR-oud project. Binnen het CONAMORE project vulden 1.313 jongeren vijf achtereenvolgende jaren vragenlijsten in, binnen het RADAR-oud project gebeurde dat drie achtereenvolgende jaren door 327 adolescenten en hun beide ouders. De in de studies gebruikte vragenlijsten betroffen angstsymptomen, ouderlijke controle, ouderlijke huwelijksconflicten en conflictoplossingstijlen van adolescenten.

In hoofdstuk 2 werden de psychometrische eigenschappen van de gebruikte angstvragenlijst Screen for Child Anxiety Related Emotional Disorders (SCARED) onderzocht binnen een Nederlandse adolescentenpopulatie. De SCARED is een zelfbeoordelingvragenlijst waarmee beoogd wordt vijf symptoomdimensies van angst te meten: paniekstoornis, sociale fobie, GAS, separatieangststoornis en schoolangst. De onderzoeksresultaten ondersteunden het beoogde onderscheid in vijf symptoomdimensies voor zowel de totale groep adolescenten als voor verschillende leeftijds-, geslachts-, en etnische groepen. De bevindingen bevestigden de bruikbaarheid van de SCARED voor het meten van angstsymptomen, zoals symptomen van een GAS, bij adolescenten.

Hoofdstuk 3 betrof een longitudinale studie naar de richting van het effect tussen GAS-symptomen bij adolescenten en de opvoedingskarakteristieken ouderlijke psychologische controle en ouderlijke gedragscontrole. Er werd een overtuigend kind-effectmodel gevonden: ervaren GAS-symptomen bij adolescenten voorspelden het ervaren van ouderlijke controle door de adolescent een jaar later. Adolescenten met GAS-symptomen hebben hun ouders gedurende de adolescentiefase als toenemend controlerend ervaren. Binnen het kind-effectmodel gold het toenemend ervaren van controle sterker en systematischer voor ouderlijke psychologische controle dan voor

gedragscontrole. Bij de jonge adolescenten bleken deze effecten sterker bij jongens dan bij meisjes, bij de oudere adolescenten werd geen verschil tussen jongens en meisjes gevonden.

In de hoofdstukken 4 en 5 werd de relatie tussen GAS-symptomen en problematische interacties binnen de gezinsrelaties onderzocht. In de studie in hoofdstuk 4 betrof het de relatie tussen het ervaren van GAS-symptomen en het gebruik van de conflictoplossingstijl 'exiting statements' (opmerkingen die uitdrukking geven aan de wens van de adolescent om het contact met zijn of haar ouders te minimaliseren of te beëindigen) in ouder-adolescentconflicten. In de late adolescentiefase, waarin de relatie tussen ouders en adolescent gelijkwaardiger wordt, bleken met name meisjes met GAS-symptomen geneigd te zijn de ineffectieve en destructieve conflictoplossingstijl 'exiting statements' te gebruiken bij conflicten met hun ouders. Hoofdstuk 5 betrof een longitudinaal onderzoek naar de onderlinge relaties tussen door ouders ervaren huwelijksconflicten, de perceptie van de adolescent van ouderlijke conflicten en ervaren GAS-symptomen bij adolescenten. De onderlinge relaties konden verklaard worden door een bi-directioneel effectmodel. Ondanks het ontbreken van een direct effect van ouderlijke huwelijksconflicten op GAS-symptomen over tijd bleek de perceptie van de adolescent een centrale rol te spelen in de relatie tussen ouderlijke huwelijksconflicten en GAS-symptomen. De ouderlijke huwelijksconflicten beïnvloedden de GAS-symptomen van de adolescent alleen als de adolescent de conflicten waarnam als conflict.

Samenvattend bevestigen de studies in deze dissertatie de verwachting dat GAS-symptomen bij adolescenten bijdragen aan problematische interacties in hun gezinnen. Een overkoepelend thema in de studies is de rol van de perceptie van de adolescent als een belangrijke factor in de relatie tussen GAS-symptomen bij adolescenten en problematische interacties in de gezinnen. Deze bevinding sluit aan bij actuele theoretische concepten over negatieve cognitieve percepties onderliggend aan piekeren, een kernsymptoom van GAS. De in de studies gevonden kindeffecten komen overeen met recente theorieën over de ontwikkeling van GAS-symptomen bij adolescenten.

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Curriculum vitae

Saskia Wijsbroek was born in Rotterdam, the Netherlands, on May 21, 1965. After receiving her pre-university schooling at De Lage Waard, a Christian high school in Papendrecht, she studied Pedagogical Sciences at Utrecht University.

From 1988 to 1994 she worked as a treatment coordinator in Herlaarhof, a children's and adolescent psychiatric hospital in Vught, the Netherlands.

In 1994-95, Saskia worked for Ashraf, a travel agency specialized in adventure tours. She prepared itineraries and worked as a group tour guide in India, Nepal, China, Tibet and Vietnam.

In 1996, Saskia returned to Herlaarhof. She expanded upon her earlier experience as a treatment coordinator providing family therapy in the inpatient and outpatient clinics, completed professional training and is now licensed as a couple- and family therapist (Nederlandse Vereniging voor Relatie- en Gezinstherapie, NVRG). She worked on location to foster integration of psychiatric patients. In this capacity and as consultant, she worked in the outdoor clinic with the Regional Child and Adolescent Outpatient Psychiatric Services (RIAGG-jeugd) in Helmond as well. Later she helped to initiate and establish a Multi-Functional Center (MFC) for dually diagnosed psychiatric patients with learning disabilities and borderline intelligence, in close cooperation with the pedagogic treatment centers De La Salle in Boxtel and De Hondsberg in Oisterwijk. At the MFC, Saskia held a position as a consultant for the Dutch national Center for Consultation and Expertise (CCE). By the end of 1998, she had additionally become the project coordinator and held primary responsibility for the regional project entitled "Adolescents between a Rock and a Hard Place" ("Pubers in de Knel"). This project was aimed at prevention, motivational trajectories and treatment of adolescent drop-outs who needed psychiatric care. Furthermore, from 1999 onwards, Saskia was made project coordinator to initiate the supra regional clinic providing outpatient psychiatric care to refugee minors as well. In 2002 she ended her work in Herlaarhof.

In mid-2001 Saskia started working part-time as an Assistant Professor (UD) at the Research Center for Adolescent Development, Utrecht University Department of Child and Adolescent Studies. Since 2004, she has coordinated the academic field of youth care; in this capacity she has been actively involved in developing and implementing courses for the Master's degree program in Pedagogical Sciences. She has been chair of the Board of Examiners of the Academic Masters Pedagogical Sciences and is a member of the Board of Examiners of the Faculty of Social Sciences at present time. In 2005, Saskia started combining her teaching and coordination duties with research, and since September 2011, she is working as a Health Care Psychologist (GZ-psycholoog) at the Social Sciences outpatient clinic of the Utrecht University as well.

Beyond the walls of the Utrecht University, she is serving on the Supervisory Board of Stichting Maatschappij Zandbergen, an institution offering assistance to children and adolescents and their families (Instelling voor jeugd en opvoedhulp) in the province of Utrecht and in 't Gooi.

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