Stress, Parent-Adolescent Interaction, and the Course of Psychopathology

Willemen, A.M.

2008

document version
Publisher's PDF, also known as Version of record

CHAPTER 1

General Introduction

"*Not everything that is faced can be changed,*
but nothing can be changed until it is faced"
James Baldwin, 1924-1987

Psychopathology in children and adolescents has stimulated many researchers to look for factors explaining the *onset* of psychological problems. These factors are presumed to be helpful in choosing the most effective treatment approach. However, less is known about the *course* of psychopathology after children are referred for mental health services. Children once referred for mental health services tend to be vulnerable for the persistence or reoccurrence of psychological problems. About half of the children or less recover from psychological problems in the long term (Heijmens Visser, Van der Ende, Koot, & Verhulst, 1999). Which underlying factors and mechanisms, besides the treatment itself, explain why some children continue to show high levels of psychological problems, while other children show recovery in the end?

The current thesis addresses particular mechanisms through which life events and emotional support may influence the persistence and change of psychopathology in children and adolescents referred for psychiatric services. Theories on emotion regulation and attachment formed the basis for specifying mechanisms that relate changes in psychological problems to the experience of stress, and the role that the relationship with parents may play in the regulation of affective responses to stressful events. This research was aimed towards uncovering risk and protective factors and mechanisms that might be amenable to interventions and increase the effectiveness of treatment currently offered.

A Developmental Perspective on Psychopathology

Developmental psychopathology is a broadly conceptualized approach to understanding the complexities of the dynamic–process relations underlying pathways of normal development and the development of psychopathology (Cummings, Davies, & Campbell, 2000b). The focus is on understanding patterns of adaptation and maladaptation across development, including factors that increase vulnerability to problems, as well as those factors that protect the individual against negative pathways. The developmental perspective underlines that multiple pathways exist to the same outcome (equifinality) and that the effect of one factor may result in different outcomes (multifinality).

From a developmental psychopathology perspective, development has been represented by the metaphor of a tree with a succession of branches which represent the

multiple pathways individuals may follow during the course of development (Sroufe, 1997). A relatively normal development may be reflected by continuous growth at or near the main body of the tree, while non–normality is reflected by a succession of branching away from the main body of the tree. After initial deviation, secondary branches may grow closer to the main body of the tree, representing the potential of individuals to ultimately achieve an adaptive outcome despite initial deviation. Developmental psychopathology emphasizes that maladaptive functioning may not be viewed as a static condition but, rather, as being in dynamic transaction with intra- and extra-individual factors (Rutter, 1996). Although a deviant pathway might be followed for multiple years, change to adaptive pathways is always possible (Sroufe, 1997).

Risk and protective factors. The theoretical perspective of developmental psychopathology suggests two types of influencing factors: risk and protective factors (Cicchetti & Cohen, 1995). Risk factors are personal or environmental characteristics that cause a deviation from normal adaptive pathways, increasing the risk for unfavourable outcomes. Protective factors promote competent adaptation in children in the presence of risk factors (Cummings et al., 2000b). Protective factors have been organized in three groups: 1) dispositional attributes within the child, including temperament, gender, capacities to regulate stress, and self–esteem; 2) family characteristics, including family cohesion and warmth, and positive parent–child relationships; and 3) domains of extra familial contexts, including the availability of a positive adult figure (e.g., teachers), and positive school experiences (Garmezy, 1985). Although risk and protective factors may have their own effects, it is the unique combination of risk and protective factors that governs adaptation or results in the continuation of maladaptive pathways (Sroufe, 1997).

Adolescents Referred for Mental Health Services

This thesis focused on adolescents referred for mental health services. In the Netherlands, about six percent of all children in the age of 6 to 18 years old use mental health services (Tick, 2007). Adolescents referred for mental health services experience different kinds of problems, such as Attention Deficit Hyperactivity Disorder, anxiety problems, conduct disorder, and depressed mood. Psychological problems can be divided in two categories 1) internalising (or emotional) problems characterized by disordered mood or behaviour, such as depressed mood, anxiety, or social withdrawal and 2) externalising (or behavioural) problems, characterized by disordered behaviour such as hyperactivity, aggression, or delinquency. The discrimination between different types of psychopathology is

essential for understanding individual differences in the development of psychological problems over time. For example, externalising problems in children have been shown to be more stable, but decrease in level from childhood to adolescence, while internalising problems have the tendency to be less stable over time, and increase during adolescence (Bongers, Koot, Van der Ende, & Verhulst, 2003; Heijmens Visser, Van der Ende, Koot, & Verhulst, 2000). Psychological problems in adolescents lead to serious problems in functioning in different contexts, such as the family, school, and social contacts (Bastiaansen, Koot, Ferdinand, & Verhulst, 2004), and have serious impact on the development through adolescence and adulthood (Rutter, Kim-Cohen, & Maughan, 2006).

Adolescents who have been referred for services for mental health, experience a deviation into maladaptive pathways of development in a period in which they are more likely to be confronted with stressful life events, and at the same time experience significant changes in their relationships with parents (Cicchetti & Rogosch, 2002). Finding a balance between autonomous behaviour while maintaining relatedness to parents, is a significant challenge for adolescents and their parents (Allen & Land, 1999; Steinberg, 2001), even without mental health problems. Adolescents may respond to their problems in ways that even further increase their vulnerability or exposure to stress, such as school misconduct, drug use, and delinquency, or harbouring low perceptions of their capacities to deal with challenging situations or elicit the help of others (Cicchetti & Rogosch, 2002; McKnight, Huebner, & Suldo, 2002).

Irrespective of the specific type of disorder they are diagnosed with, adolescents with mental health problems apparently share a certain vulnerability or diathesis to develop psychological problems. This diathesis may not only play a role in the onset of mental health problems, but also in the reoccurrence and maintenance of these problems (Heijmens Visser et al., 1999). Studying referred adolescents over time provides the unique possibility to investigate factors that affect diversity in the course of psychopathology. In addition, deviant behaviours and contextual factors can be examined that may not be apparent or easily detected among adolescents from the general population. Altogether, investigating the specific risk and protective factors that are typical for referred adolescents has the potential to increase understanding of the factors associated with the course of psychopathology, forming the basis for preventive and intervening actions for this specific group aimed to improve psychological recovery in a substantial number of adolescents.

Life Events and Perceived Stress

Stressful life events, such as parental divorce, loss of a best friend, and serious physical illness, have been shown to be important risk factors for the development of psychological problems (Grant et al., 2003). One of the few studies in referred children has shown that among factors as temperament, intelligence and family relations, only the number of life events significantly predicted the maintenance of child psychopathology (Mathijssen, Koot, & Verhulst, 1999). Nevertheless, the exposure to stressful life events does not always lead to increased levels of psychopathology. Furthermore, if these events have an impact on mental health this might occur through several different mediating processes.

First, stressful life events have an effect on the daily life of individuals. Life events, such as loss or parental divorce, may change the structure and organization of the day, decrease access to supportive resources, and may have impact on feelings of perceived competence to control one's life. Together, these effects may decrease the effectiveness of the individual dealing with daily life, possibly resulting in decreased mental health. According to this model, each individual exposed to stressful life events is affected in similar ways, depending only on the seriousness of the events. Second, in order to understand why stressful life events appear to be linked to symptoms of psychopathology in some individuals but not in others, the concept of personal vulnerability might be important. Vulnerability factors represent relatively stable aspects of an individual that make him or her more likely than others to develop symptoms of psychopathology following stressful events. Children once referred for mental health services are shown to be characterized by inadequate appraisal and coping styles, which make them vulnerable for the effects of stress (Rutter et al., 2006). According to the vulnerability–stress perspective (e.g.,Ingram & Luxton, 2005), individuals that possess vulnerability factors may be more likely than other individuals to experience symptoms of psychopathology in the presence of stressful life events. Third, individuals may have strong personal or environmental resources at their disposal which enable them to cope with even serious stressors. According to the resilience model, individuals that have disposal over these resources may show successful adaptation despite challenging or threatening circumstances (Masten et al., 1999).

In their transactional model of stress, Lazarus and Folkman (1984) argued that stress is a highly subjective experience. Depending on personal vulnerability and resiliency, adolescents experience lower or higher levels of stress when faced with life events. Prolonged levels of perceived stress have been shown to put adolescents at risk for the development and continuity of psychological problems (Bradley, 2000). Therefore, the level of perceived stress

as experienced by the individual may explain how stressful life events are related to the course of psychopathology. Investigating the level of perceived stress may be helpful to explain how and why stressful life events are associated with the course of emotional and behavioural problems in referred adolescents.

Emotion Regulation and Psychopathology

As mentioned, exposure to risk will not necessarily be translated into maladaptive outcomes for adolescents. Adolescents may have strong emotion regulation competence to enable them to cope with even serious stressors. Emotion regulation refers to the internal and external processes that are involved in managing the occurrence, intensity, and expression of emotions (Thompson, 1994). When faced with a stressful event, the first step in the emotion regulation process is estimating the threat of the situation and evaluating the resources to regulate the emotions that accompany the stressful situation (Lovallo, 1997). Individuals may have strong personal or environmental resources at their disposal which enable them to cope with even serious stressors. If individuals appraise their internal or external resources as adequate to handle the situation, then they are less likely to feel threatened, or exhibit adjustment difficulties.

Emotion regulation has been proposed to play an important role in the development and maintenance of psychopathology (Bradley, 2000; Southam-Gerow & Kendall, 2002). Adequate internal emotion regulating processes enable individuals to correctly appraise the situation and their resources, and to effectively execute a behavioural or emotional response. Parents who are responsive to children's emotions may give their children a sense that they will be able to handle the situation, thus reducing their sense of threat. Therefore, emotion regulation may be an important mechanism through which personal and family factors influence the course of psychopathology.

Gross' (2002) process model of emotion regulation provides a framework for describing the various steps involved in shaping emotional responses. If a situation is perceived as important or threatening, emotions arise which call forth a coordinated set of emotional responses which may be acted out at three levels: physiological reactions, affective experiences, and behavioural actions. Affective experiences have been described in the foregoing paragraph as the experience of subjective stress. Physiological reactions describe physical changes such as sweat production and increases in heart rate frequency. The integrative study of reactions to stress at different levels is increasingly seen as important for

understanding adaptive and maladaptive processes of emotion regulation (Beauchaine, 2001; Bradley, 2000; Gross, 2002; Lovallo, 1997).

Physiological regulation of arousal. Physiological responses originate in the autonomic nervous system. The autonomic nervous system controls the function of internal biological processes such as respiration, digestion, pupil dilatation, constriction of the vascular system, and also heart rate. The sympathetic branch of the autonomic nervous system mobilizes the fight–flight response preparing the body for action, while the parasympathetic branch is predominantly associated with calm states and homeostasis (Kalat, 2001). During situations which are appraised as stressful, sympathetic activation and parasympathetic withdrawal support the provision of required energy (such as oxygen and glucocorticoids) that prepares the body for action. On the short term, physiological stress responses are adaptive and help the individual to mobilize behavioural actions to cope with the stressor. However, if stress responses are prolonged they may lead to changes in brain functions that are involved in coping with stress. Besides other side effects such as impaired immune system functioning (Herbert & Cohen, 1993), alterations resulting from prolonged stress response lead to less flexibility in responding to environmental challenges (Bradley, 2000; Schore, 2001).

Increasing evidence from neuropsychological studies of brain activity suggest that individuals who recover more quickly from emotional challenge are those who show resiliency in the face of stress (Tugade, Fredrickson, & Barrett, 2004). The parasympathetic system regulates the activity of the sympathetic fight–flight system and is suggested to facilitate emotion regulation processes (Calkins, 1997; Porges, 2007). Therefore, the role of the parasympathetic system in down-regulating the physiological stress response may be an important aspect of emotion regulation to prevent against prolonged levels of arousal and for the continuation of psychopathology.

The Parent–Child Relationship and Emotion Regulation

The parent–child relationship has been assumed to play an important role in the development of emotion regulation in children and adolescents (Sheffield Morris, Silk, Steinberg, Myers, & Robinson, 2007). Parental figures are the primary environmental resource for young children for dealing with stressful circumstances. Infants have the inborn tendency to use contact and proximity with familial caregivers to regulate their emotions. This results in the development of an attachment bond that maintains the function of a secure base for children to co-regulate their affective arousal (Bowlby, 1981). Exposure to emotionally available caregivers in childhood has been shown to facilitate the open discussion and sharing

of emotions, which in turn provides the opportunity for a child to learn about emotion and emotion regulation (Laible, Carlo, & Roesch, 2004). The relevance of a secure attachment relationship during adolescence is illustrated by several studies linking attachment to psychosocial functioning (Allen, Hauser, & Borman-Spurrell, 1996; Allen, Moore, Kuperminc, & Bell, 1998; Buist, Dekovic, Meeus, & Van Aken, 2004). However, few studies have investigated the role of the parent–adolescent relationship with respect to emotion regulation (for an exception see Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993).

When children are young, parents typically initiate regulation strategies (e.g., soothing the child). When children grow older, emotion regulation strategies develop and children learn to self-regulate (Eisenberg & Sheffield Morris, 2002). However, for older children and adolescents, a warm relationship with their parent in which they feel secure to display their emotions might still be important, especially for children with psychological problems. Adolescents may particularly use the parent–child attachment relationships to cope with stressors that exceed their (perceived) individual capacity to deal with stress. Indeed, young adults were found to continue to use age-appropriate attachment behaviours towards their attachment figures for support when worried or upset (e.g., turning to someone, having the experience of feeling cared for, spending time thinking about someone) (Campa, Hazan, & Wolfe, in press). Next to these secure base behaviours, parental behaviours of autonomy support have also been shown to be related to emotion regulation in adolescents (Allen, Hauser, Eickholt, Bell, & O'Connor, 1994). Autonomy granting is relevant in that adolescents are developing a more advanced self-concept (Steinberg & Sheffield Morris, 2001), which may improve the way children and adolescents handle stress in daily life. Thus, the quality of parent–child interactions under conditions of stress may be important for the regulation of emotion.

Linking individual differences in the quality of parent–child interaction to physiological indices of emotion regulation may uncover the pathways through which attachment relationships with parents influence psychological adjustment in adolescents. However, existing paradigms for studying parent–adolescents interaction are unsuited for studying links with emotional responses in the same time. Therefore, in the present thesis, a paradigm, the Alarm Stress Task (AST), was developed to enable the simultaneous assessment of parent–child interaction and physiological regulation. The stressor was devised to elicit a mildly stressful reaction in adolescents, salient and ambiguous enough to challenge secure base behaviour in adolescents during reunion with their parent. Moreover, the task was

designed to limit the confounding effect of movements, by asking adolescents to lie quietly on their bed (see Chapter 3 of this thesis).

The Current Thesis

Aims of the study. The general aim of the current thesis was to provide more insight in child personal and family factors in children and adolescents referred for psychiatric services. In addition, the mechanisms were investigated through which these factors may influence the persistence and change of psychopathology. Firstly, we focused on the risk effect of stressful life events before and after referral on the course of psychopathology. The role of perceived stress was investigated as a mediator between stressful life events and the course of psychopathology. Secondly, the protective effect of the parent–child relationship on child psychopathology was examined at two levels. At the micro level, we investigated whether the parent–child relationship facilitates the regulation of arousal during a stressful situation. At the macro level, we investigated whether the parent–child relationship is actually protective against the effects of stress on child's psychological problems. The conceptual model is outlined in Figure 1.1.

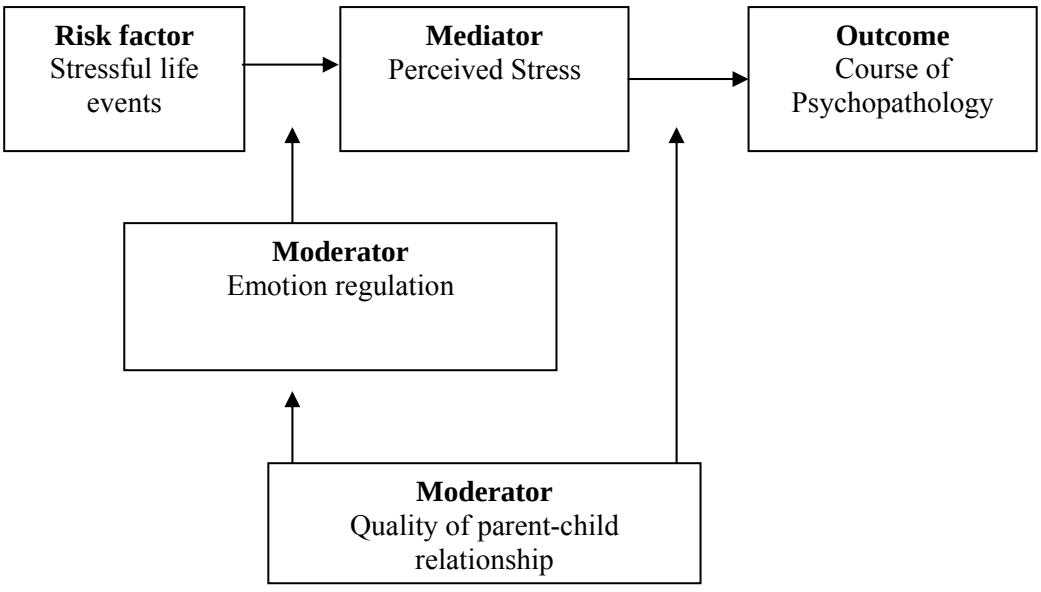

FIGURE 1.1. Conceptual model of the study.

The specific aims of the thesis are:

1. To investigate whether perceived stress mediates the influence of stressful life events on the course of psychopathology in referred children and adolescents;
2. To develop a paradigm to explore the quality of parent–adolescent interaction and physiological aspects of emotion regulation in a stressful situation;
3. To examine whether the quality of parent–adolescent interactions moderates the effect of psychopathology on the physiological aspects of emotion regulation in a stressful situation;
4. To test whether the quality of parent–adolescent interactions moderates the association between stress and the course of psychopathology.

To address the research aims, four studies were performed (Chapters 2, 3, 4, and 5). The research aims are consecutively discussed in the four chapters.

Design of the study. Three samples were used in this study. A longitudinal follow–up approach is necessary to investigate the development of psychopathology in adolescents once referred for mental health problems. The first research aim was addressed by following up an existing study cohort from the outpatient clinic of Child and Adolescent Psychiatry, Erasmus Medical Centre – Sophia Children's Hospital (Bastiaansen et al., 2004). This referred sample was followed up in three waves across four years (Sample 1). The third and fourth aims were addressed by a selection of families that participated in the third wave and also participated in the *intensive* part of the study (Sample 2). The second aim was addressed by an independent sample, with 20 clinical and 20 non-clinical adolescents (Sample 3). Table 1.1 presents an overview of the included samples and measures in the four chapters.

TABLE 1.1

Overview Chapters, Included Samples, Procedures and Measures

	Chapter 2	**Chapter 3**	**Chapter 4**	**Chapter 5**
Sample 1 Time 1: *n* = 310 Time 2: *n* = 231 Time 3: *n* = 257	Data from all three waves were used: • Stressful life events • Perceived Stress • Parent and self-reported problems			
Sample 2 Selection of Time 3 participants from Sample 1 (*n* = 102)			• Alarm Stress Task • Secure Base Behaviour • Physiological data • Parent and self-reported problems	• Family Interaction Task • Autonomy, Positive Affect, Hostility • Stressful life events • Parent and self-reported problems (Time 1 and 3)
Sample 3 Clinical adolescents: *n* = 20 Non-clinical adolescents: *n* = 20		• Alarm Stress Task • Secure Base Behaviour • Physiological data		

Sample 1 consisted of 310 children and adolescents aged 6–18 years who were referred between August 1, 2000 and September 15, 2001 to a general (56%) or a university (44%) outpatient child psychiatric clinic in the city of Rotterdam. Table 1.2 describes the composition of Sample 1 with respect to initial clinical DSM-IV diagnosis. This sample was followed up one year later (Time 2; 231 families, 75% response rate) (Bastiaansen, Koot, & Ferdinand, 2005b). Four years after referral (Time 3), 257 families (83% response rate) participated in the third wave of the study. At all three waves, parents and adolescent filled out questionnaires about life events, perceived stress, and emotional and behavioural problems. The data from all three waves were used in Chapter 2 of this thesis.

TABLE 1.2

Description of Sample 1 with Respect to Distribution of Psychopathology at Time 1

				Age Time 1	
Diagnostic category	N	%	% Male	*M*	*SD*
Externalising					
Attention deficit and disruptive behaviour disorders	107	35	77	10.4	3.0
Internalising					
Anxiety disorders	57	18	39	11.4	3.1
Mood disorders	29	9	31	11.8	3.4
Pervasive Developmental Disorders	28	9	82	9.7	2.4
Other disorders	22	7	50	12.0	3.3
Referred - no diagnosis	67	22	57	12.6	3.2
Total	310	100	60	11.3	3.2

Sample 2 consisted of a selection of families that participated in the third wave of the follow-up study. On the basis of four criteria, families were selected for participation: IQ of the target child above 70, age between 10 and 17 years, living at home with one or two parents, and without any diagnosis in the autistic spectrum. Finally, 102 adolescents and their primary caregiver (10 fathers; 63 boys) participated in the *intensive* part of the study. They were visited at home from June 2005 till February 2006, and participated in parent-adolescent interaction tasks. Table 1.3 describes the composition of Sample 2 with respect to the initial clinical DSM-IV diagnosis obtained at Time 1. The data from this sample are used in Chapter 4 and 5.

TABLE 1.3

Description of Sample 2 with Respect to Distribution of Psychopathology Obtained at Time 1

				Age Time 3	
Diagnostic category	N	%	% Male	*M*	*SD*
Externalising					
Attention deficit and disruptive behaviour disorders	49	48	80	12.9	1.9
Internalising					
Anxiety disorders	27	26	56	13.4	1.8
Mood disorders	12	12	42	13.7	1.9
Pervasive Developmental Disorders	0	0	0	0	0
Other disorders	8	8	63	13.7	1.6
Referred - no diagnosis	6	6	17	13.4	1.7
Total	102	100	64	13.1	1.8

Sample 3 was an independent sample and consisted of 1) twenty clinical adolescents who were currently treated in an outpatient clinic of an academic centre for child and adolescent psychiatry in Amsterdam, and 2) twenty non-clinical adolescents from the general population. The data of this sample were obtained during October 2004. These families were visited at home and participated in the Alarm Stress Task. Table 1.4 describes the composition of the clinical sample with respect to their clinical DSM-IV diagnosis. The data from this sample are used in Chapter 3.

TABLE 1.4

Description of Sample 3 with Respect to Distribution of Psychopathology

				Age	
Diagnostic category	N	%	% Male	*M*	*SD*
Externalising					
Attention deficit and disruptive behaviour disorders	10	25	90	11.7	2.0
Internalising					
Anxiety disorders	4	10	33	14.8	1.0
Mood disorders	3	8	25	11.8	1.6
Pervasive Developmental Disorders	0	0	0	0	0
Other disorders	3	8	67	11.1	1.7
Not referred - no diagnosis	20	50	50	12.6	2.1
Total	40	100	58	12.7	2.0

Outline of the present thesis. In the following chapter, Chapter 2, the continuity and change in internalising and externalising problems is investigated across four years of follow-up. In addition, the effect of stressful life events and the mediating role of child's perceptions of stress on the course of psychopathology are further explored. In Chapter 3, the reliability and construct validity of the Alarm Stress Task was examined by comparing clinical and non–clinical adolescents on secure base behaviour and physiological responses. Chapter 4 addresses the effect of secure base interaction between parent and adolescent on physiological reactivity and recovery. Chapter 5 reports on protective effects of observations of parent–child interactions on psychological problems in times of stress. Finally, in Chapter 6 the central results of the four studies are integrated and discussed.