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***Childhood Stress:
Stressors, Coping, and Factors.***

Literature study

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1. Introduction

This literature study is part of a master thesis research at the science shop of the University Medical Centre in Groningen. The general question is whether children can get burnout. This question, submitted at the science shop, was at first studied by Hielkema (2006). She argued that children who are tired due to busy and stressful lives, should not be diagnosed with burnout, as burnout is related to adults' professional employment. They could better be diagnosed with Chronic Fatigue Syndrome (CFS), a diagnosis that is better applicable to children. However, CFS is mainly seen as a medical problem, whereas burnout is much more related to environmental stressors. Theoretically, the (medical) diagnosis of CFS does not fit to children who are exhausted mainly due to environmental stressors. The concept of burnout has a more environmental basis. Therefore it was argued that children who are exhausted mainly due to environmental stressors, should better be given the diagnosis (school)burnout (Nijboer, 2006).

Burnout is a matter of imbalance in life very often (Nijboer, 2006). In order to know more about imbalance and exhaustion in children, stress and coping in children will be investigated in this literature study. The goal is to identify common childhood stressors, the ways children cope with stress, and what factors make children vulnerable to these stressors. This leads to three basic research questions:

1. What causes stress in children? Can any common childhood stressors be identified?
2. How do children cope with stress? Which coping strategies are (mal)adaptive?
3. What makes children vulnerable to stress? Can any vulnerability factors or protective factors be identified?

This study will focus on school stress. Because school is such a large part of a child's life, the school experience is a highly significant factor in the child's life-stress situation (Chandler, 1997). In another study, elementary children identified school as the most stressful of all domains (Karr & Johnson, 1991). While burnout is originally related to adults' jobs, school can be seen as work for children (Nijboer, 2006). To be able to develop a concept of burnout in children, this study will therefore focus on school stress.

1.1 Definitions

In general, stress is defined as 'emotional pressure suffered by a human being' (www.wiktionary.org), or as 'great worry caused by a difficult situation, or something which causes this condition' (www.dictionary.cambridge.org).

The ICD-10 (World Health Organization, 1992) describes stress as physical and mental strain – not otherwise specified. The diagnosis of stress is made when the problems related to stress can not be classified elsewhere, such as problems related to socioeconomic and physical circumstances or problems related to employment or unemployment.

The Diagnostic and Statistical Manual of Mental Disorders (fourth edition) classifies disturbance due to stress as Adjustment Disorders. All Adjustment Disorders are characterized by a common stress-related etiology. However, Adjustment Disorder is a very heterogeneous category in its symptom presentation and degrees of impairment. Six different types of Adjustment Disorder can be identified according to the predominant symptoms: Adjustment Disorder with depressed mood, with anxiety, with mixed anxiety and depressed mood, with disturbance of conduct, with mixed disturbance of emotions and conduct, and an unspecified subtype. Adjustment Disorder is specified as acute if the disturbance lasts less than 6 months, and as chronic if the disturbance lasts for 6 months or longer (Frances, First, & Pincus, 1995). Diagnostic criteria for Adjustment Disorders are:

- A. The development of emotional or behavioural symptoms in response to an identifiable stressor(s) occurring within 3 months of the onset of the stressor(s).
- B. These symptoms or behaviors are clinically significant as evidenced by either of the following:
 - 1. marked distress that is in excess of what would be expected from exposure to the stressor;
 - 2. significant impairment in social or occupational (academic) functioning.
- C. The stress-related disturbance does not meet the criteria for another more specific mental disorder (e.g. depressive disorder) and is not merely an exacerbation of a preexisting disorder.
- D. The symptoms do not represent bereavement.
- E. Once the stressor (or its consequences) has terminated, the symptoms do not persist for more than an additional 6 months (Frances, First, & Pincus, 1995).

In the scientific literature, stress is defined in many different ways. Most definitions define stress as a relational phenomenon, rather than a generalized response to stimuli in the environment (De Anda et al., 1997). Stress is seen as an unfolding, dynamic relationship between the individual and their environment (Helms, 1996). From this point of view, the interaction between the individual and the environment plays a major role. This interaction is mediated by the appraisal of the threat value of the situation and the ability to cope with the situation (De Anda et al., 1997). Out of this interaction, children can experience ‘pressure’ by expectations that either cannot be met or are difficult to meet (Elias, 1989). This interactional aspect is an important factor in defining school stress, as school stress is a concomitant of

forces that push schools to emphasize academic acceleration, competition, evaluation, and test-based accountability (Elias, 1989).

Another common way of defining stress is in terms of physical reactions. These types of definitions describe stress as the body's non-specific response or reaction to demands made on it, or to disturbing events in the environment (Bauwens & Hourcade, 1992). From this point of view, stress is a physical response which causes real and measurable changes in many bodily functions and is particularly apparent during major life events (Helms, 1996).

Besides a physical response, there is also an emotional aspect of stress. The third type of definitions of stress refers to this aspect: an emotional tension or anxiety arising from situations perceived as traumatic or threatening to one's security, self-esteem, safety, or way of life (Helms, 1996).

Stress is a cause of human distress and dysfunction. One should distinguish eustress and distress. Eustress is the good kind of stress because it is associated with positive feelings and healthy body states, and is evoked by positive emotions and/or events. Distress is the bad kind, associated with negative feelings and disturbed bodily states, and evoked by negative emotions and/or events. Another distinction is among three kinds of stress: harm, threat, and challenge. Harm is negative and refers to psychological damage that had already been done (e.g. an irrevocable loss). Threat is also negative: the anticipation of harm that has not yet taken place but may be imminent. Challenge results from difficult demands that we feel confident about overcoming by effectively mobilizing and deploying our coping resources. If we do not manage to feel confident, challenge is negative. However, if we do feel confident, challenge can be a positive kind of stress (Lazarus, 1993). This study will focus on the negative types of stress resulting in problems, disturbance and/or dysfunction, and therefore handles about distress.

1.2 Symptoms

When children are feeling stressed, they can have a hard time communicating what they feel, so they express it in a variety of ways (Scofield, 1998). De Anda et al. (1997) describe four main responses to stress: physiological, behavioural, cognitive, and affective responses. Physiological responses to stress can be headaches, fast heart beat, hot and flushed face, light headedness, perspiring palms, and butterflies in stomach. Behavioural symptoms are seen when a child has trouble falling asleep, bites his/her nails, cries easily or feels like crying, and shows a loss of appetite. On the cognitive domain, stressed children are anxious about going to school, are worrying about a lot of things, and are having hard times keeping their worried thoughts out of their mind. Common affective responses are frustration, anger, feeling out of control, and sadness (De Anda et al., 1997; Jones Sears & Milburn, 1990).

With respect to school stress, stressful school environments have been linked to children's experiencing inordinate amounts of fatigue, headaches, stomach aches, illness, and exacerbation of allergies and conditions such as asthma and diabetes (Elias, 1989). So these physiological symptoms are an indicator of stress in the school environment. Not only physiological symptoms are seen in stressful school environments, but also behavioural problems come into sight. If children are not 'good' enough in academics, and if schools provide few other outlets and pathways to a feeling of effectiveness and accomplishment, students will show that they can be the 'best' at disrupting learning, showing disrespect, and resisting entreaties of teachers and parents to do homework. Negative peer subgroups are also available to provide needed pathways for the spurious self-efficacy of becoming 'good' at stealing, smoking, beer drinking, and baiting authority figures (Elias, 1989). Moreover, increasing rates of adolescent suicide, depression, and substance abuse have been cited as indicators of increasing stressors and adolescent's inability to cope with the resulting stress (De Anda et al., 1997). An association is also found between stress and cognitive performance: the more stress a child experiences, the lower are the scores on aptitude and achievement testing (Plante & Plante Goldfarb, 1993).

However, it should be noted that stressful conditions do not produce dependable effects; for some persons the stress aroused by a given condition is great, while for others it is small; and under stress conditions, depending on the task, the performance for some is markedly impaired, for others it is improved, and for still others there is no demonstrable effect. This might be due to individual differences in motivational and cognitive variables, which intervene between the stressor and the reaction (Lazarus, 1993).

As noted before, burnout is a matter of imbalance in life. Looking at the interactional definition of (school) stress, this also seems to be a matter of imbalance: an imbalance between expectations and what a child can achieve by him- or herself, which leads to experiencing 'pressure', which can lead to stress. In order to make clear what exactly is (school) stress in children, the three main questions (on stressors, coping, and protective and vulnerability factors) will be answered in the results section.

2. Method

In order to know more about imbalance and exhaustion in children, stress and coping in children will be investigated in this literature study. The goal is to identify common childhood stressors, the ways children cope with stress, and what factors make children vulnerable to these stressors. Three research questions were formulated:

- What causes stress in children? Can any common childhood stressors be identified?
- How do children cope with stress? Which coping strategies are (mal)adaptive?
- What makes children vulnerable to stress? Can any vulnerability factors or protective factors be identified?

Literature on the topic of this study was searched for in the databases ERIC and PsychINFO. Also PiCarta and the RuG catalogue were used. Because this literature study focusses on stress as an environmental rather than a medical phenomenon, it was decided not to use medical databases such as PubMed or Medline.

With respect to stress, the following keywords were used: *stress*, *stressors*, *school stress*, *childhood stress*, and *coping*. In order to get specific results on school stress and children, combinations were made with the keywords *children*, *youth*, *school*, and (*elementary*) *education*. To search for Dutch literature, the keywords *stress* and *kinderen/jongeren* were used.

In the beginning of the searching process, I strived for using only literature that was published at most 10 years ago. However, when searching for literature, it appeared that many research on children's stress was done in the late eighties and early nineties. Since some of these 'old' articles contained very useful information, it was decided to include them in this study. Finally, articles published since 1988 were included. An exception was made for Elkind's book on *The Hurried Child*, published in 1981. Since Elkind describes very well how children react when their lives are too busy, this book was used as well.

My thesis research will focus on children in group 7 and 8 (grades 5/6). It was chosen to focus on the highest grades of primary education, because these children almost need to make the transition to secondary education, which is known as a very stressful event (Helms, 1996). In this literature study, results on elementary and middle school students were included, because the Dutch groups 7 and 8 are internationally comparable to the highest grades of elementary education or the first grades of middle (high) school, depending on the educational system of a country.

This study handles on stress as an environmental phenomenon, resulting from problems of imbalance and exhaustion. In other words, the main topic of the study is distress; the bad kind of stress associated with negative feelings and disturbed bodily states, and evoked by negative emotions and/or events (Lazarus, 1993).

To get clear what these negative emotions and events are, an overview of causes of stress will be given in the results section, chapter 3. A categorization of different stressors will be made on macro, meso, and micro levels, resulting in 7 categories of stressors: academic/school and economic stressors on macro level; interpersonal stressors and media on meso level; and physical, psychological, and developmental stressors on micro level.

In chapter 4, the results on the second research question will be presented. This chapter will focus on the ways children cope with stress, and which coping strategies are (mal)adaptive. Two models of coping will be discussed: the ways of coping model by Folkman & Lazarus (1980; in Pincus & Friedman, 2004), and the primary-secondary control model by Brotman Band & Weisz (1988). The influence of different coping styles on children's experiences and their behavior will be described as well. Next, attention will be paid to the question how children can be helped to cope better. In this paragraph on interventions the school environment will be highlighted. Finally, the role of self-efficacy in coping will be investigated.

To clarify what makes children vulnerable to stress, an overview of vulnerability and protective factors will be given in chapter 5. To categorize all different factors, a general stress and coping framework (Moos, 2004) was used. This framework can help to understand how personal and social factors are associated with children's adaptation. All vulnerability and protective factors found in the literature will be categorized within the 5 systems of the framework: environmental system, personal system, transitory conditions, cognitive appraisal and coping skills, and health and well-being.

3. Results: stressors

Stress stems from confronting the unknown, from insecurity. Therefore, unrealistic and vague expectations can be a source of considerable stress to children. These days, rapid technological and social changes can cause profound implications for the raising of children, which can place stress on parents as well as their children (Chandler, 1997).

Stress experienced by children comes from pressures from outside themselves, such as family, friends, and school, but also within themselves (Hale, 1998). When experiencing stress, it is the child's perception of a particular event which makes the event a stressor (Helms, 1996). From this point of view, internal pressures are thought to be most significant, because we determine rules and standards for ourselves. When a discrepancy occurs between what we think we ought to be doing and what we are actually doing – we experience stress (Hale, 1998).

The literature reports many childhood stressors, which can be divided into seven different categories on micro, meso, and macro levels. On the macro level, academic/school stressors and economic stressors can be defined. On the meso level, interpersonal stressors and media play an important role. Physical, psychological, and developmental stressors are defined on the micro level.

3.1 Academic/school stressors

The literature is not consistent on the importance of school stressors. De Anda et al. (1997) argue that the greatest stress is school related, with school related stressors being reported with the highest frequency. However, in another study, non-school sources of stress are found to exacerbate school-related stress (Karr & Johnson, 1991).

In general, two major categories of school-related stressors can be defined: a) *achievement* or the mastery of academic subject matter and evaluation of performance; b) *social* or the relationships with peers, interactions with teachers, and participation in classroom activities (Helms, 1996). In this paragraph, the achievement category will be treated. Social stressors within school will be treated under the paragraph interpersonal stressors.

Academic stress is determined by students' perceptions of their academic performance or achievement. Jones Sears & Milburn (1990) define three stress clusters: test anxiety, fear of success or failure, and fears associated with the school setting, which can include school phobia as the most extreme form.

Test anxiety is mentioned very often with respect to school stress. Tests are one of the most frequent school-based sources of stress (Bauwens & Hourcade, 1992). Stressors related to test-anxiety are: worry about taking tests, test preparation, test taking, receiving (poor

grades, failing an (athletic) exam, and failing marks at school (Brotman Band & Weisz, 1988; Jones Sears & Milburn, 1990; Pincus & Friedman, 2004; Romano, 1997).

Fears of success or failure are also quite common. These fears refer to achievement situations. Fear of success is defined as the arousal of expectancy, in competitive situations, that success will lead to negative consequences. The opposite, fear of failure, reflects the tendency to avoid a task in achievement situations and is especially experienced by elementary students. These fears can arise from different school based sources of stress, such as school work, discipline and classroom management procedures, extra-curricular activities, and public performances. (Helms, 1996; Jones Sears & Milburn, 1990)

School work itself is a large stressor. Different school work related sources of stress, under which not only tests and exams, but also concerns about grades, report cards, academic (performance) problems, learning disorders, classmates laughing at incorrect answers, schoolwork demands, academic pressures, work sheets, in-class and homework assignments, and demands made on students' time play a role in enhancing school stress (Bauwens & Hourcade, 1992; De Anda et al., 1997; Helms, 1996; Jones Sears & Milburn, 1990; Romano, 1997). Helms (1996) compared academic stress in students with and without disabilities and found, against expectations, that students without disabilities tend to be more concerned with their academic performance and grades.

With respect to physical education activities, athletic exams, dressing and undressing can be stressors, especially for middle school students (Bauwens & Hourcade, 1992; Jones Sears & Milburn, 1990). When the school culture is competitive, performance situations can be even more stressful, especially when recognition is made for outstanding personal achievement (Jones Sears & Milburn, 1990; Romano, 1997).

Discipline and classroom management procedures are mentioned as a stressor more often by boys than by girls, and more often by younger students. Public discipline, such as being publicly reprimanded, and name written on the blackboard is particularly stressful (Bauwens & Hourcade, 1992).

Extra-curricular activities are often competitive: athletic competitions, preparing for and playing in sporting events (especially football, basketball, soccer, and softball), being in a dance or cheerleader team, dramatic productions, recitals, and plays (Bauwens & Hourcade, 1992; Romano, 1997). The competitive aspects of these school-activities can be stressful (Jones Sears & Milburn, 1990; Karr & Johnson, 1991).

Public performances as being stressful are slightly more mentioned by girls (Bauwens & Hourcade, 1992). Being asked to participate in public performances, such as public readings, reciting a poem, giving oral reports or speeches in front of the class, and working at the blackboard are the most common public stressors (Bauwens & Hourcade, 1992; Jones Sears & Milburn, 1990; Romano, 1997).

Younger children experience different stressors than older children. For young children, entry into the school world means a host of new challenges that the child must meet. These include separation from parents, moving out into wider geographical space, acceptance to new authority figures, and encountering a new series of unfamiliar demands. These demands involve attending to and responding to unfamiliar stimuli, subordinating individual wishes to a group, and learning to socialize with large numbers of peers against whom the child must now be measured (Jones Sears & Milburn, 1990). However, also for older children, the beginning of a new school year is often stressful (Romano, 1997), especially when the child has to make the transition from primary to secondary education. Changing to a new school brings worries for example about getting lost in the new school (Helms, 1996; Jones Sears & Milburn, 1990). Sometimes, middle school students have difficulties seeing the relevance of school, which can be stressful (Helms, 1996).

Elias (1989) argues that the presence of school stressors is due to unbalance in the educational system: debilitating stress in our schools is an all too prevalent, harmful, and counterproductive by-product of an educational system in imbalance. A balanced educational system educates multiple intelligences (linguistic, logical-mathematical, spatial, kinaesthetic, musical, intrapersonal, interpersonal) and encourages, lauds, and rewards accomplishment in any of these 7 intelligences. Our educational system fosters overdevelopment in linguistic and logical-mathematical domains, but overdevelopment of any single area is likely to produce a social misfit. Children whose talents lie elsewhere may actually come to feel inferior and alienated.

Almost all literature agree that school is a demanding experience. It calls upon the child to work, to attend with some consistency, and to marshal his or her resources, in sustained concentrated effort. In a world that is constantly changing, living lives that feel the effects of dislocation, and upheaval, of hurried schedules, and fragmented contacts with various adults, many children are left confused, uncertain, and tentative about life. Lacking self-confidence, they are ill-prepared for the demands of school (Chandler, 1997). Then, the existence of other stressors can contribute to the weight of school stressors.

3.2 Economic stressors

The second type of stressor on the macro level is not often mentioned in the literature. De Anda et al. (1997) points to economic hardship as a stressor. Home and money, as measured by the Life Stressors and Social Resources Inventory (Youth Form), play a role in the existence of economic stressors when problems occur with physical condition of home and neighbourhood, such as lack of cleanliness and comfort (Moos, 2004). A physically

unsafe environment and job-related stress (of the parents) can be seen as economic stressors as well (De Anda et al., 1997; Elias, 1989).

3.3 Interpersonal stressors

Being in trouble, at home or school, is a stressful experience (Romano, 1997). At school, children do not only experience academic stressors, but also social ones. These interpersonal school stressors happen on the meso level and have to do with problems or conflicts with teachers, counsellors, coaches, and classmates or other students (Jones Sears & Milburn, 1990; Moos, 2004). Student-teacher interactions are defined as students' social interactions with their teachers or their perceptions of their teachers' attitudes towards them (Helms, 1996). A common interpersonal stressors with respect to teachers is treatment of the students by the teacher. A teacher getting mad or screaming at the children, having 'pets' or otherwise displaying favouritism, and making fun of or teasing students is stressful for children, especially for girls (Bauwens & Hourcade, 1992; Brotman Band & Weisz, 1988). For elementary students, it is most stressful not to be liked by their teachers or failing to meet the expectations of their teachers. For older children (middle school), having direct problems with their teachers becomes more stressful (Helms, 1996).

In school, peer interactions are students' interactions with their classmates or their perceptions of classmates' feelings towards them (Helms, 1996). Social interactions with peers can cause social problems such as not knowing other students (especially early in the school year), pressures from peers concerning dress, appearance, and generally 'fitting in'. These stressors were more often mentioned by girls than by boys (Bauwens & Hourcade, 1992). Also children with disabilities tend to have greater stress regarding relationships with their teachers and classmates (Helms, 1996).

Student friendships can be a stressor, when interpersonal problems with a friend exist (Moos, 2004; Romano, 1997), or when friends are separated (e.g. by moving away or moving to a different school or a different class) (Brotman Band & Weisz, 1988; Pincus & Friedman, 2004). Interest in or relationships with peers of the opposite sex can be stressful as well (De Anda et al., 1997; Romano, 1997), especially when interpersonal problems with a boy- or girlfriend come up (Moos, 2004).

Conflict situations with peers are stressful (Pincus & Friedman, 2004). This can range from mild conflicts such as another child saying means things and not being invited to a party, to teasing (about glasses, dental braces, obesity, etc.), serious bullying, and rejection as a life experience in the end (Brotman Band & Weisz, 1988; Hale, 1998; Jones Sears & Milburn, 1990; Romano, 1997). Also fads and dares (pressure to buy or to act) and becoming involved with drugs or alcohol due to peer pressure can be stressors (Jones Sears & Milburn, 1990; Romano, 1997).

Interpersonal stressors do not only originate from interactions with teachers and peers, but also from the family situation. Mothers are viewed as stressors less often than fathers and siblings (Romano, 1997). Family conflict is stressful (De Anda et al., 1997) when interpersonal problems with mother or father occur: a child is in conflict with his/her parent and the parent is getting mad (Brotman Band & Weisz, 1988; Moos, 2004; Pincus & Friedman, 2004). Siblings can be stressors when interpersonal problems or rivalry with siblings exist, when older siblings are setting school expectations too high, or when they are setting a bad family reputation. Also younger siblings can become stressors in a child's life (Jones Sears & Milburn, 1990; Moos, 2004; Romano, 1997).

However, most stressful are marital relationship problems between parents. Parental separation and divorce are extremely stressful events for children (Karr & Johnson, 1991; Moos, 2004; Plante & Plante Goldfarb, 1993; Romano, 1997), especially when the child is forced to take sides in parental conflicts or when divorce brings about separation from one parent (Hale, 1998; Jones Sears & Milburn, 1990). Obviously, loss of a parent due to death is very stressful (Hale, 1998; Romano, 1997).

Due to higher divorce rates, more children grow up in extended families. Not surprisingly, extended families can hold more childhood stressors: interpersonal stressors related to relatives other than parents or brothers and sisters contribute to the experience of stress as well (Moos, 2004).

Other family related stressors are parental problems, such as parental depression, alcohol abuse, illness, unemployment or jail sentence of a parent (Jones Sears & Milburn, 1990; Moos, 2004; Romano, 1997). Children can feel embarrassed about these parental problems, which is stressful as well (Jones Sears & Milburn, 1990).

Parental interest can be a stressor when it goes into extremes. On the one hand, lack of parental interest in achievements can create feelings of rejection and is therefore stressful. On the other hand, too much parental interest in the form of pressure to achieve can also contribute to feelings of stress (Hale, 1998; Jones Sears & Milburn, 1990). A primary causal factor seems to be fear and concern that children will not have a 'successful' future, success being defined in terms of college education and high-paying professional or technical careers. Parents and teachers who adopt this viewpoint are gambling with their children's lives, and doing so against the developmental odds (Elias, 1989). In other words, parents and teachers can, with good intentions, contribute to childhood stress by emphasizing academic achievement.

3.4 Media

On the meso level, also media can have a reasonable influence on the experience of stress. Being exposed to excessive television, especially violent programs, is a significant

stressor (Jones Sears & Milburn, 1990). This is due to the nature of television, which extends our senses: many of the conceptual and logical barriers to extending children's experiences are effectively swept away by television. Children no longer have to read or be able to translate a broadcaster's words in order to experience events that are happening around the world. With television, children have access to news, drama, and entertainment without having to translate words into images. While they actually are suitable for adults, and not for children, the images are already there (Elkind, 1981).

3.5 Physical stressors

Stressors can also be of individual nature, as with physical, psychological, and developmental stressors. A physical stressors such as being ill can be stressful, especially when illness and health problems are serious, such as with physical or developmental disabilities, (physical) disorders, traumatic injury, recurrent pain, and chronic illness (De Anda et al., 1997; Moos, 2004). According to Moos (2004), medical conditions would be stressful when they began more than 12 months ago. For children, this is a surprising long period, since it is recommended by many authors that chronic conditions should be diagnosed in children when they exist for at least 3 months (Nijboer, 2006). Being ill for a long period can also create adjustment and mental health problems, which can be an additional stressor (De Anda et al., 1997).

It might be clear that being seriously ill or physically injured is stressful. However, visits to the doctor or dentist are even stressors in a child's life. At the doctor, getting a shot is most stressful (Brotman Band & Weisz, 1988; Jones Sears & Milburn, 1990; Pincus & Friedman, 2004; Romano, 1997).

Personal physical unsafety is a physical stressor as well. Threat or theft of personal belongings endangers feelings of personal safety (De Anda et al., 1997). Walking outside at night or playing outside alone can be dangerous and therefore stressful. Having an accident and getting hurt due to unsafety is even more stressful (Brotman Band & Weisz, 1988; Romano, 1997).

3.6 Psychological stressors

As mentioned before, being seriously ill can create adjustment and mental health problems. Mental health problems can be serious psychological stressors. Different life experiences (e.g. physical or sexual abuse) cause stress in young children, which is reflected in emotions such as despair, frustration, anger, and powerlessness (Hale, 1998; Plante & Plante Goldfarb, 1993). This can lead to emotional maladjustment (depression), behavioural adjustment problems, and psychological disturbance (De Anda et al., 1997).

With respect to the school situation, academic self-concept can function as a stressor. Academic self-concept is defined as students' feelings of self-worth, self-esteem, or self-

concept with respect to their perceived academic ability. Academic self-concept is found to be higher in students without disabilities (Helms, 1996).

3.7 Developmental stressors

Children's (psychological) adjustment is being filtered through a prism of developmental changes, including physical growth, hormonal changes, growth of formal operational thinking skills, a maturing sense of personal identity (including sexual identity), greatly increased demands for self-organisation and responsibility, and psychosocial issues of dependency, conformity, and independence, particularly as relates to adult authority figures. These developmental changes contribute to the stressfulness of contexts in which (academic) learning occurs (Elias, 1989).

While growing older, children worry about self, one's own expectations, social life, appearance, stress from friends, and world events. During specific developmental stages, worrying about world events is found to be a major source of stress (De Anda et. al., 1997).

Above, many childhood stressors are listed in seven different categories. Common stressors for school-aged children include academic demands, fear of success, fear of failure, friendship initiation, and peer conflict (Pincus & Friedman, 2004). How children deal with these stressors will be treated in the next paragraph on coping.

4. Results: coping

The second question of this literature study deals with how children cope with stress, and which coping strategies are (mal)adaptive.

4.1 Ways of coping model

Folkman & Lazarus (1980; in Pincus & Friedman, 2004) developed the cognitive appraisal theory of stress and coping (ways of coping model), in which coping is described as a multidimensional *process* involving *cognitive appraisals*, a *coping response*, and a *coping outcome*. According to the cognitive appraisal theory, persons engage in a ‘coping process’ which consists of two distinct components that can mediate the effects of this stressor: 1) *cognitive appraisal* and 2) *coping response*. In the *cognitive appraisal* process, primary and secondary appraisals are made. A person immediately makes primary appraisals of the significance of a stressful event to his or her personal well-being (e.g. how challenging, threatening, or harmful the situation is judged to be). Secondary appraisals are an interpretation of the availability of coping resources and options (e.g. answering the question “What can I do?”). With respect to appraisals, a child’s mere perception of an actual or potentially bad situation can elevate his stress (Karr & Johnson, 1991). The *coping response* is defined as ‘an intentional physical or mental action, initiated in response to a perceived stressor, which is directed toward external circumstances or an internal state’. Coping *outcome* is closely related to coping efficacy, as success or failure of a coping outcome is determined by whether an intended goal was attained. The effectiveness of coping can range from a negative action that makes the situation worse to a positive action that improves the situation with a future orientation.

The ways of coping model describes two fundamental types of coping, which differ on the basis of the focus of coping. The focus of coping is an adolescent’s orientation and activity in response to a stressor. An adolescent can approach the problem and make efforts to resolve it, or try to avoid the problem or focus on managing emotions associated with it (Moos, 2004). The first type of coping response has been labelled *problem-focused coping* and refers to efforts to directly change or master the source of stress (e.g. by altering either the environment, changing external pressures, or finding resources so that the distressing situation is made less threatening). The second type of coping has been labelled *emotion focused coping* and refers to efforts to manage or regulate the negative emotions associated with the stressful episode (e.g. cognitive distraction, seeking emotional support, emotional regulation, emotional expression, cognitive restructuring, positive self-statements, thought-stopping, or selective attention). Emotion-focused coping strategies are typically more adaptive when an appraisal leads to the conclusion that nothing can be done to modify difficult conditions.

Problem-focused coping, however, will be more adaptive when the situation has been appraised as amenable to change. Children and adolescents change their coping efforts as a function of situational demands: primarily problem-focused strategies to cope with academic situations, primarily emotion-focused strategies to cope with medical situations. The contextual shift in coping strategies was related to control appraisals of the situations: emotion-focused coping in situations perceived as uncontrollable, and more problem-focused coping in situations perceived as controllable (Pincus & Friedman, 2004).

4.2 Primary-secondary control model

Brotman Band & Weisz (1988) defined 10 different coping approaches in children, based on a combination of the ways of coping model and a primary-secondary control model. The primary-secondary control model distinguishes three ways of controlling a stressful event, in which the method of coping differs: different responses entail primarily cognitive or behavioural efforts (Moos, 2004). The first way, primary control, is coping aimed at influencing objective conditions or events. Secondary control is defined as coping aimed at maximizing one's goodness of fit with conditions as they are. Third, relinquished control, is a failure to cope: no effort is made to enhance rewards or reduce punishments. The combination of the primary-secondary control model (primary, secondary, and relinquished control) and the ways of coping model (problem focused coping: trying to manage or modify the source of the problem, and emotion focused coping: trying to manage or reduce emotional distress) resulted in 10 possible coping strategies, divided in 3 categories.

The first category are primary control strategies. With *direct problem solving* effort is made to change stressful circumstances in an immediate way. Trying to think of different ways to solve the problem, self-reliance with respect to problem solving, and actually solving the problem by working on it, practicing, and preparing is often used as a coping strategy and is successful (Romano, 1997). Examples are studying to improve one's grades, telling others to stop teasing, and putting a band-aid on a cut (Brotman Band & Weisz, 1988). The second primary control strategy is *problem-focused crying*: crying to elicit instrumental assistance from others, such as crying so that a parent intervenes on a child's behalf when he or she is being bullied. Third, with *problem-focused aggression*, efforts are made to resolve problems through physical or verbal aggressive behaviour (e.g. beating up a child who has been taunting or name-calling). The fourth primary control strategy is *problem-focused avoidance*: experiencing a stressful situation is tried to be directly avoided by walking away, withdrawing and being alone, staying away from kids who fight or tease, or making efforts to avoid being taken to the doctor for a shot (Brotman Band & Weisz, 1988; Romano, 1997).

The next category, secondary control strategies, are approaches not directly focused on the problem. *Social/spiritual support* buffers distress through social or spiritual means.

Some children seek for spiritual support by praying. However, most children seek interpersonal support from parents and/or peers, talk with parents or friends and tell them their problem in the hope that they will provide help, support, or encouragement. These strategies are reported to be adaptive (De Anda et al., 1997; Brotman Band & Weisz, 1988; Romano, 1997). Second, *emotion-focused crying*, is crying to release pent-up feelings or to elicit comfort from others. This is crying in order to just 'let the bad feelings out'. Both internalizing (e.g. go off by yourself) and externalizing (e.g. yell to let off steam) are maladaptive in reducing stress. The same is for *emotion-focused aggression*: physical or verbal aggression to release pent-up feelings. An example of this type of aggressive behaviour is kicking a wall after embarrassed to 'let it out' (De Anda et al., 1997; Brotman Band & Weisz, 1988; Romano, 1997). The fourth strategy, *cognitive avoidance*, is mentioned very often in the literature. With cognitive avoidance, efforts are made to avoid thinking about a stressful situation through various cognitive strategies. Seeking for diversion and distraction can help to forget about or keep one's mind off the problem. Adaptive distraction is found through playing, having fun, watching television, listening to music, playing video games, reading, doing a physical activity (exercising or going for a walk), and sleeping. However, some distraction strategies are maladaptive, such as substance abuse and overeating (De Anda et al., 1997; Brotman Band & Weisz, 1988; Romano, 1997). Fifth, the strategy of *pure cognition* aims to reduce stress through fantasy or a shift in one's way of thinking by cognitive control, affective release, relaxation, or distancing (e.g. make believe noting happened). Examples of pure cognition strategies are daydreaming, hoping for the best, telling oneself that it was not that bad after all, and trying to get your mind and body to relax (e.g. by deep breathing). Sometimes children deny their feelings, but these cognitions are maladaptive (De Anda et al., 1997; Brotman Band & Weisz, 1988; Romano, 1997).

The third category consists of relinquished control strategies. Relinquished control means *doing nothing*: giving up or making no effort to deal with the stressful circumstances or to reduce their stressful impact. This strategy is not adaptive, and is reported to be used only by a few children (about 3.5%) (Brotman Band & Weisz, 1988). Actually, all positive coping strategies were most used and most adaptive. Negative strategies were lowest in frequency (De Anda et al., 1997).

4.3 Children's experiences

Children as young as 6 years old are aware of stress in their lives. Although they are exposed to significant levels of stress, children may lack both the necessary experience and maturity to understand stress and the intellectual and emotional resources to cope effectively with it (Bauwens & Hourcade, 1992).

Youth who rely more on approach coping skills are likely to resolve a focal stressor more quickly, and to experience more self-confidence and less distress. In contrast, youth who rely on avoidance coping are less likely to resolve a focal stressor and more likely to experience depression, anxiety, and behaviour problems, and to engage in alcohol and drug use (Moos, 2004). According to De Anda et al. (1997), rates of adolescent suicide, depression, and substance abuse have increased. This could be an indicator of increasing stressors and adolescent's inability to cope with the resulting distress. Although adaptive coping strategies were found to be more effective in reducing stress than maladaptive coping strategies, most adolescents did not perceive their coping strategies to be very effective in reducing stress (De Anda et al., 1997).

4.4 Interventions

A few authors pay attention to how children can be helped to cope better (i.e. more adaptive) with stressors. When children are being subjected to a high level of stress, this will impede their acquisition of academic skills and leave precious little energy or motivation for developing the competencies needed for citizenship, responsibility, parenthood, and the actual world of work (Elias, 1989). Moreover, children who tend to cope well with stress may be at an advantage in testing performance in school (Plante & Plante Goldfarb, 1993). Therefore, it is desirable that students learn to cope with stress in their lives. The most common place to 'teach' coping seems to be the school, as most authors focus on the school situation. Although reducing the source of stress is at some times more appropriate than teaching how to cope, teaching students more effective coping skills may be the only alternative when the sources of stress (e.g. family difficulties) are beyond the control of the school. (Bauwens & Hourcade, 1992).

However, when the sources of stress are within the school environment and therefore under control of the school, students' stress can be reduced by creating a place that is quiet, orderly and structured. The school day can be made predictable with a regular schedule: a predictable environment reduces stress that comes from confronting the unknown. A predictable, orderly and structured environment lessens anxiety and allows children to free up energy that can be more appropriately devoted to learning. A predictable environment is also created by establishing the teacher as an authority figure: teachers, like parents, are powerful symbols of adult authority for children. They set limits. They mediate and interpret the world for children. In the process they foster the children's emotional development helping them to find ways to cope with stress. Furthermore, it is important to set clear expectations for academic performance: unrealistic and vague expectations can be a source of considerable stress to children. Therefore, teachers should help youngsters and their parents to set realistic academic goals (Chandler, 1997).

If children seem to have difficulties to cope, a step-wise solution is recommended. The first step should be a realistic recognition of the problem, with personal reflection about those things which are most important, to guide life's decisions. Secondly, if rapid social changes have been made the child's world more unsettled, every attempt should be made to provide continuity and a more stable, consistent, and predictable environment at home and in school (Chandler, 1997). Collaboration among educators, school psychologists, and other school personnel, as well as parents and children, is also needed to alleviate debilitating stress and to improve coping (Elias, 1989).

Children can be taught 'cognitive-affective' skills and 'problem-solving' skills using brief, skill-focused interventions. Existing intervention programs have shown some success in improving the number of strategies children can generate, in reducing some symptoms of behavioural and emotional problems, and in enhancing children's ability to deal effectively with particular life stressors. However, most of these programs have focused primarily on teaching children problem-solving skills. Pincus and Friedman (2004) aim at emotion-focused coping skills. The main finding was that young, school-aged children could be taught to generate increased emotion-focused coping strategies after being taught these skills in a brief training session.

4.5 Self-efficacy

Children's ability to deal with stressors is significantly related to their psychological adjustment. Having a repertoire of coping skills at a young age can be a 'buffer' or 'moderator' of the effects of negative life stress on the development of psychological maladjustment. The use of multiple coping responses (flexibility) is a predictor of positive psychological adjustment. Children who are able to use both emotion-focused coping strategies and problem-focused coping strategies when they are appropriate have more favourable emotional and behavioural adjustment than children who rely solely on one type of strategy (Pincus and Friedman, 2004). Self-efficacy plays an important role in psychological adjustment. A sense of self-efficacy – a sense that one's efforts are worthwhile and that one can attain things that are rewarding, enjoyable, and fun – is a fundamental component of positive mental health and social adjustment. A sense of self-efficacy is an effective coping strategy when facing stress, but precisely a sense of self-efficacy is being squeezed out by school stress and pressure without countervailing influences strong enough to support positive coping and stress-management competencies. Also self-concept and self-esteem play a role, but unfortunately, under conditions of high stress and failure children's self-concept and self-esteem both suffer as well (Elias, 1989).

5. Results: vulnerability factors and protective factors

The third question addressed in this literature study is on factors that play a role in experiencing stress: what makes children vulnerable to stress? Can any vulnerability factors or vulnerability traits be identified?

Moos (2004) shows a general stress and coping framework (figure 1) that can help understand how personal and social factors are associated with children's adaptation. The environmental system (box 1) is composed of relatively stable conditions in specific life domains important for youth, which include the family climate and ongoing life stressors and social resources. The personal system (box 2) includes children's biogenetic characteristics, and such personal resources as cognitive and intellectual abilities, social competence and self-confidence, and optimism and extroversion. Box 1 reflects enduring aspects of the environment, whereas box 3 includes transitory conditions, such as new life events and participation in treatment and intervention programs. The model posits that ongoing environmental and personal factors foreshadow these transitory conditions, and that these three sets of factors shape cognitive appraisal and coping skills (box 4) and, in turn, children's health and well-being (box 5). The bi-directional paths in the model indicate that these processes are transactional and that reciprocal feedback can occur at each step. Personal and contextual factors act in conjunction with coping skills to affect psychosocial functioning and maturation, which become part of the personal system at the next stage of development (Moos, 2004).

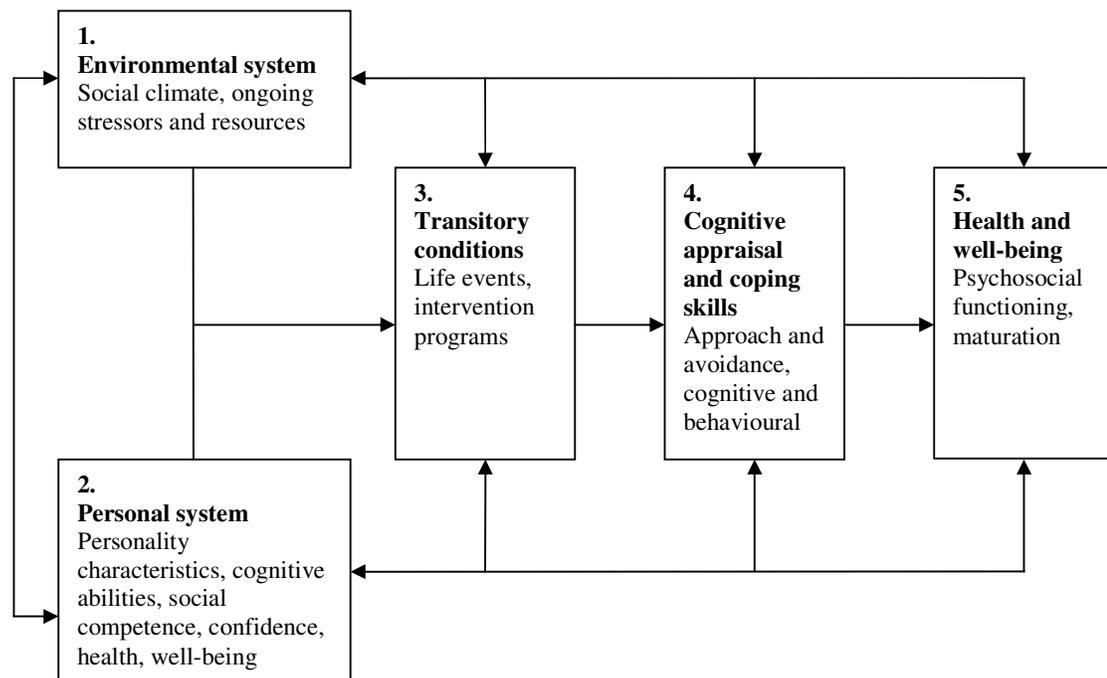


Figure 1: a model of the interplay between context, coping, and adaptation among youth (Moos, 2004).

5.1 Environmental system

The environmental system consists of relatively stable factors that play an important role in children's lives. The child's ability to meet all new (school) demands depends on such factors as cultural and familial expectations and norms, including the parents' attitudes toward learning and toward school as an authority, expectations related to gender, and the amount of support available from various sources (Jones Sears & Milburn, 1990). Social resources, such as support, serve as protective factors. Social support and empathy are provided within the family from parents, siblings, and possibly extended family members, and also outside the family from friends or in school (from teachers, counselors, coaches, and other students). On the contrary, when there is a lack of social resources or when parents, siblings, friends, and teachers are sources of chronic stressors, vulnerability factors exist associated with poorer psychological functioning, more depression and problem behaviour (Moos, 2004).

Family support and structure are associated with better adaptation among youth experiencing stress. Specifically, more family support and organization are linked to fewer behavioural problems, as reflected by less anxiety and distress, and less impulsive behaviour. On the other hand, high family conflict was associated with more child behaviour problems (Moos, 2004). Parents can create high test anxiety and therefore stress in their children, when they are being negative toward their child, ignoring their children's bids for security, not offering constructive help in problem solving, and teaching their children to engage in task-irrelevant and even task-inappropriate behaviours in problem solving or evaluative situations. Parenting styles can be of important influence. Principles for parents to reduce anxiety and stress are 1) be accepting and encouraging; 2) set realistic goals and expectations; 3) teach and model active learning and problem solving; 4) reward interest in learning and academic achievement (Jones Sears & Milburn, 1990).

Parental support is especially important for youth who are experiencing ongoing stressors. The quality of children's relationships with their mother or father moderated or reduced the potential negative effect of acute and chronic stressors. The quality of family relationships seems to be even more important than are family rules and structure. Family cohesion and expressiveness are predictors of higher social competence and lower psychological distress. With respect to chronic medical stressors, more emphasis on intellectual and recreational orientation was also related to better child adjustment (Moos, 2004).

Although parental support is an important protective factor, too much support has an opposite effect. If a parent provides too much adult direction and support, the child attempts to avoid evaluative situations unless adults are present. A parent setting unreasonable high expectations can also provoke high levels of evaluation anxiety: because parents' judgments of the children's performance are frequently negative, the child cannot achieve parental

expectations, which can result in high test-anxiety. To promote low test-anxiety, most optimal is when parents are offering effective problem-solving techniques and strategies without taking over the entire problem-solving situation. In other words, when they are teaching their children to rely on their own resources and to respond with task-oriented responses. Overprotection can model fearfulness for the child, and therefore emphasize stress (Jones Sears & Milburn, 1990).

So, a balanced supportive family milieu, including parenting styles, parent-child relationships, and mental health of the family is an important protective factor against stress (Jones Sears & Milburn, 1990).

Another environmental factor is societal. Individualism in society since the 1960s changed attitudes towards parenthood. Changes (e.g. rise in divorce rates, in single-parent families, in numbers of working or unwed mothers) eroded the nuclear family, introducing instability and widespread disruption into the lives of children. Now children were exposed to shifting arrangements of various adults who once would have assumed the crucial and primal roles of 'father' and 'mother'. Children in single-parent families and step-families are at greater risk for emotional problems and academic difficulties than those from intact, mother-father families (Chandler, 1997). Indeed, children from non-traditional families scored significantly higher on school stress than children from traditional families, regardless of gender, ethnic background, and type of school program (Karr & Johnson, 1991). Confused, uncertain, insecure, and feeling inadequate, such children are not capable of meeting the demands of school (Chandler, 1997).

Nowadays, childhood as a time of innocence, of playfulness, of imagination and discovery disappears. Much blame can be placed on the newly emerging power and persuasiveness of the mass media, but also the current democracy in families plays a role. In democratic families, children are given a greater say in the choices that affect their lives, which also means that the responsibility for consequences are diluted, and a potentially burdensome responsibility is lifted from the parents. In this way, children today are made aware of many potentially emotionally-laden issues from which they were kept blissfully ignorant only a few decades ago (Chandler, 1997). According to Elkind (1981), modern parents hurry the child to grow up. 'The hurried child' is not allowed to be a child, and is forced to face an adult reality for which he is not emotionally prepared. The contemporary parent has to focus competing demands, role changes, and personal and professional uncertainties. There simply is little surplus time and energy left over for the child, and 'quality time' cannot make up for the fact that time and energy used in work, and in managing the various demands of an active life, leave little for the child. The phenomenon of 'latch-key kids' is increasing: these children are left on their own after school, which is seen as a

primary explanation for students' difficulties in class. Due to changing parental roles and working mothers, children grow up more and more in (early) day care services. The effects of growing up in institutions are only poorly understood (Chandler, 1997).

Although not as much reported as families and society, schools are also part of the environmental system. From the school experience children can gain a greater sense of security and self-confidence, a sense of the importance for individual achievement, inner motivation, a work ethic, self-discipline, and respect for authority and responsible social behaviour (Chandler, 1997). Schools that give primacy to the child as a social being, rather than as an academic learner experience gains in sense of self-efficacy, responsible behaviour (and reduce discipline problems), faculty morale, parent involvement, and academic achievement (Elias, 1989). The teacher-student relation plays an important role as well: if the teacher is perceived as punitive and authoritarian, students' anxiety levels are high. On the other hand, if the teacher is perceived as non-punitive, non-authoritarian, and willing to help, the student's anxiety level (and thus stress) was reduced (Jones Sears & Milburn, 1990). So a balanced school climate can contribute to reducing stress. Indeed, children of divorce showed better coping and academic work in schools that are structured and stable (Chandler, 1997). Physical safety in schools is also important: a physically unsafe environment is stressful very often (Elias, 1989).

5.2 Personal system

Besides environmental factors, many personal aspects play a role in feelings of stress as well. Age, gender, genetic factors, temperament, intelligence, and problem solving skills affect the stress experienced and the responses of children (Karr & Johnson, 1991). Although *gender* is often thought to be an important factor, the results are varying. According to De Anda et al. (1997), girls experience more stress and a longer duration of stress than boys. However, this is not confirmed by other studies. Some studies report different stressors in boys and girls, but no differences in the amount of stress. Boys mention more school problems and athletic performances as stressors, while girls nominate more interpersonal problems and oral presentations as stressors (Pincus & Friedman, 2004; Romano, 1997). However, in the study of Karr & Johnson (1991), stress perceived by girls and boys was the same. With respect to coping, results were also differing: Romano (1997) found boys more likely to use acting out/anger as a coping device, while girls talked more with others to reduce stress, but De Anda et al. (1997) did not find any gender differences with respect to coping strategies.

Age as a developmental factor is mentioned by many authors. Among the youngest children (6-7 years), primary and secondary control coping were described with equal

percentages. As age increases, primary coping declines and secondary coping increases, so older children use more emotion-focused coping than younger children. Younger children rely more heavily on problem solving skills. The use of emotion-focused strategies increases with age and with development. Emotion-focused strategies appear to emerge in late childhood and increase with age, levelling off by late adolescence, in part because secondary coping is more often hidden from view (e.g. in the form of cognitions) and thus more difficult to learn through observation (e.g. of parents, teachers siblings, and peers). It is also possible that the subtlety of many secondary control approaches makes them relatively difficult for 6- and 7-year-olds to comprehend given the early concrete operational level of their cognitive development. In other words, children in the youngest age group appeared to be better at generating effective primary control strategies than they were at generating effective secondary control strategies. Older children (approximately 10 and older) are also more likely to generate a greater overall number of coping strategies, and to use more cognitively based strategies (e.g. cognitive distraction) than younger children. Furthermore, older children are shown to be more effective than younger children at implementing these strategies (Brotman Band & Weisz, 1988; Pincus & Friedman, 2004).

Although older children have a larger repertoire of (secondary) coping strategies and are more effective at implementing those strategies, this does not mean that they experience less stress. Not only the use of coping strategies changes with age, but also differences exist in the types of events that children of different ages find stressful. Children aged 9-14 most frequently experience problems with school, siblings, parents, and friends. Adolescents aged 14-17 years most commonly report four types of problems: school, parents, friends, and boyfriend/girlfriend problems. Problems with boyfriend/girlfriend relationships increase and problems with siblings decrease as the child enters adolescence (Pincus & Friedman, 2004).

Young adolescents have their own specific developmental needs. Early adolescence is a time of physical, intellectual, emotional, and social development, which involves many challenges (which can enhance stress) (Gerler, 1991). For example, young adolescents become intensely aware of their own 'standing' relative to others, and are vulnerable to the stress arising from unmet expectations (Elias, 1989). Gerler (1991) listed 7 specific challenges for young adolescents, which can be read in box 1.

Box 1: challenges of early adolescence (Gerler, 1991)

<p>Challenge of understanding self Physical, emotional, social, and intellectual growth brings excitement, delight, anxiety, and misunderstanding. Difficulties associated with leaving childhood for a new stage of life.</p>
<p>Challenge of family relationships Leaving behind much of their early dependence on home and family.</p>
<p>Challenge of peer pressure and drug abuse (relationship between peer pressure and substance abuse) The combination of experimentation with new behaviours and reliance of peers for guidance and direction can have devastating effects on young people’s lives if it results in experimentation with alcohol and other drugs.</p>
<p>Challenges of stressful lives Middle school students often face many stressful circumstances. Adults sometimes have a tendency to discount what adolescents say, believing that most of the stress youngsters experience will pass as maturation occurs. This lack of empathy on the part of adults may leave adolescents feeling misunderstood and alienated.</p>
<p>Challenge of sexual maturation Physical maturation, and particularly sexual maturation, has significant effects on self-concept and social relationships during the middle school years. Most youngsters dwell on how to make themselves more attractive and acceptable to their peers.</p>
<p>Challenge of academics Pressure from society to strive for high levels of academic achievement, without enough parental support.</p>
<p>Challenge of career exploration “Who will I become?”, achieving gainful employment.</p>

Although not mentioned in many articles, having a *disability* can be an important personal factor in the experience of stress. Children with disabilities face more frequent manifestations of stress. Not only because of the disability itself, but also because they have not learned the social-behavioural skills necessary for success in school, which brings them at an even greater disadvantage. These children may experience even greater stress while having fewer strategies for dealing with it. Children with disabilities tend to have greater stress regarding relationships with their teachers and their classmates while children without disabilities tend to be more concerned with their academics performance and grades (Helms, 1996). However, in the study of Karr & Johnson (1991) special education children reported no greater stress than children in regular education.

Personality dispositions of the child can serve as a protective factor with respect to (school)stress. The child’s ability to meet all new (school)demands depends on such factors as the amount of self-confidence and sense of mastery the child has developed up to that point; and also underlying genetic endowment (Jones Sears & Milburn, 1990). Youth who are higher on emotionality (especially distress, fear, and anger) tend to experience more stressors and fewer resources in most life domains, whereas more active and sociable youth tend to enjoy more social resources. Moreover, high distress and anger has been associated with increases in health, sibling, extended family and friend-related stressors (Moos, 2004). Variables that differentiated stress-resistant from stress-affected children were perceived global self-worth, empathy, social problem-solving skills, and self-esteem (Pincus and

Friedman, 2004). In school, being anxious for and worrying about tests (test-anxiety), contributes to stress as well (Jones Sears & Milburn, 1990).

One study mentioned *ethnicity* as a factor of influence on stress. Whereas in earlier studies ethnic minority children were identified as experiencing more school stress than majority children, in the sample of Karr & Johnson (1991) non-white children did not experience more stress than white children.

5.3 Transitory conditions

Transitory conditions are foreshadowed by ongoing environmental and personal factors and include such factors as new life events and participation in treatment and intervention programs (Moos, 2004). The number of *positive life events* in the last year, occurring in six resource domains (parents, siblings, extended family, school, friends, and boy-/girlfriend), serve as a protective factor. An external support system that encourages and reinforces a child's coping efforts and strengthens them by inculcating positive values can help as well (Jones Sears & Milburn, 1990).

On the other hand, the number of *negative life events* in the last year – occurring in eight stressor domains: physical health, home and money, parents, siblings, extended family, school, friends, boy-/girlfriend – are stressful and therefore a risk factor (Moos, 2004). Threatening factors in meeting the specific developmental needs of young adolescents (see box 1) are negative events such as family dysfunction, substance abuse, teen pregnancy, teen suicide, sexual abuse, school dropout, etc. (Gerler, 1991). The effects of traumatic life events make children, just as adults, more vulnerable to a variety of both psychological and medical disorders (Karr & Johnson, 1991). Indeed, negative events were associated with more depression and problem behaviour. Also the presence of acute stressors is a risk factor associated with poorer psychological functioning among youth (Moos, 2004).

Whereas the environmental system consists of relatively stable factors, transitory conditions are temporal. In this respect, the type of situation can be a factor of influence as well. Brotman Band & Weisz (1988) described clearly how the type of situation affects children's coping: children vary their reported strategies across various situations. Perhaps the situations that evoked the greatest percentages of primary coping (loss/separation, peer difficulty, and school failure) were perceived by the children as more controllable than less familiar situations (e.g. medical circumstances or physical accidents) or conflicts with authority figures. Coping with school failure, for example, was almost always reported in primary control terms, with children describing various efforts to modify objective circumstances and outcomes – for example, by improving their grades or otherwise upgrading their performance. With medical stressors, by contrast, children most often described secondary control approaches, approaches aimed at controlling the psychological impact of

stressful events without changing the events as such – for example, thinking happy thoughts to distract oneself from the pain of ‘getting a shot’.

Although the type of situation affects children’s reactions, the transitory conditions never are a factor on its own; it is always preceded by factors of the environmental and personal systems. For example children’s reactions to a test situation are partially a reflection of experiences at home, and partially a function of the way they perceive their teachers (Jones Sears & Milburn, 1990).

5.4 Cognitive appraisal and coping skills

All factors from the environmental and personal systems and transitory conditions shape cognitive appraisal and coping skills. These include approach and avoidance, and cognitive and behavioural factors (Moos, 2004). Coping skills as described in chapter 4 are an important factor within this category. Also locus of control can play a role: in case of an internal locus of control an individual feels in control of his successes and failures, while in case of an external locus of control successes and failures are attributed to something beyond the individual’s control. Research proved that children with a less effective locus of control attributed their successes to external factors like luck, and their failures to internal factors like lack of capacities (Ghesquière & De Munter, 1998).

An important variable that differentiated stress-resistant from stress-affected children were realistic control attributions (Pincus and Friedman, 2004). Children that were so called fear-of-failure persons experienced more stress due to ineffective attributions: they ascribed failure to a lack of their own ability, and ascribed success to external (good luck) factors (Jones Sears & Milburn, 1990).

5.5 Health and well-being

Environmental and personal factors, transitory conditions, and cognitive appraisal and coping skills all together determine children’s health and well-being. Personal and contextual factors act in conjunction with coping skills to affect psychosocial functioning and maturation, which become part of the personal system at the next stage of development (Moos, 2004). So health, well-being, psychosocial functioning, and maturation become one of the new personal factors to be classified in box 2 of figure 1. Together with other personal factors, environmental factors, and new transitory conditions, they shape new appraisals and coping skills, and in turn a new state of health and well-being.

6. Conclusion & discussion

This literature study addressed three research questions:

1. What causes stress in children? Can any common childhood stressors be identified?
2. How do children cope with stress? Which coping strategies are (mal)adaptive?
3. What makes children vulnerable to stress? Can any vulnerability factors or vulnerability traits be identified?

On each research question, conclusions and some discussion topics will be treated in this chapter, as well as a summary of definitions and symptoms of stress.

6.1 Definitions

Since this literature study is on childhood stress, an overview was given of different definitions of stress. Many definitions were found in the literature, but overall three categories of definitions could be identified. Most authors presented a relational definition of stress, in which the interaction between the individual and the environment plays a major role. This is an important point of view with respect to school stress, since pressure to achieve in school arises from expectations experienced out of interactions with teachers, parents, and other students. Stress can also be seen as a physical response which causes real and measurable changes in bodily functions (physical definition) or as an emotional tension or anxiety arising from situations perceived as traumatic or threatening to one's security, self-esteem, safety, or way of life (emotional definition).

6.2 Symptoms

Many different symptoms of stress in children were also found, which could be divided in four main categories: physiological, behavioural, cognitive, and affective responses. All symptoms can be read in box 2. In case of school stress, physiological, behavioural, and cognitive symptoms were mentioned by different authors. Surprisingly, no reports of affective responses on school stress were found. Probably, some overlap exists between behavioural and affective responses. For example aggression or withdrawn behaviour could be explained as both a behavioural and an affective response. Moreover, a behavioural response could be brought about by a specific emotion (affective response). In this sense, behaviour is a result of affect. In theory, behavioural and affective responses could be distinguished, but in practice it might be difficult to discriminate between these two types of responses. This could explain the lack of reports of affective responses in educational settings.

Box 2: symptoms of stress in children, presented in four main categories

<p>Physiological responses Headaches, fast heart beat, hot and flushed face, light headedness, perspiring palms, butterflies in stomach.</p>
<p>Behavioural responses Trouble falling asleep, biting nails, crying easily, feeling like crying, loss of appetite.</p>
<p>Cognitive responses Being anxious about going to school, worrying about a lot of things, having hard times keeping worried thought out of mind, low aptitude and achievement testing scores.</p>
<p>Affective responses Frustration, angeriness, feeling out of control, sadness.</p>

6.3 Stressors

Stress comes from pressures outside and within ourselves. When a discrepancy occurs between what we think we ought to be doing and what we are actually doing – we experience stress. So it is the child’s perception of a particular event that makes the event a stressor.

To answer the first research question, seven categories of stressors on macro, meso, and micro levels were defined. All stressors can be found in box 3.

Box 3: childhood stressors

Level	Category	Stressors
Macro	Academic/school	<ul style="list-style-type: none"> - <i>Achievement</i>: mastery of academic subject matter, evaluation of performance. - <i>Test anxiety</i>: worry about taking tests, test preparation, test taking, receiving grades, failing an exam, failing marks at school. - <i>Fear of success</i>: fear that success will lead to negative consequences. - <i>Fear of failure</i>: fear and avoidance of tasks in achievement situations. - <i>Fears associated with the school setting</i>: school phobia. - <i>School work</i>: tests, exams, concerns about grades, report cards, academic (performance) problems, learning disorders, classmates laughing at incorrect answers, schoolwork demands, academic pressures, work sheets, in-class and homework assignments, demands made on students’ time. - <i>Discipline and classroom management procedures</i>: public discipline. - <i>Extra-curricular activities</i>: competitive aspects of athletic competitions, sporting events, being in a dance or cheerleader team, dramatic productions, recitals, plays. - <i>Public performances</i>: public readings, reciting a poem, working at the blackboard, giving oral presentations in front of the class. - <i>Beginning of a new school year</i>: new school, new building, new challenges and demands.
	Economic	<ul style="list-style-type: none"> - <i>Economic hardship</i>: (problems with) home and money, physically unsafe environment, parents’ job-related stress.
Meso	Interpersonal	<ul style="list-style-type: none"> - <i>School</i>: participation in classroom activities, interactions with teachers, treatment by the teacher. - <i>Peers</i>: not knowing others students (early in the school year), pressures from peers concerning dress, appearance, ‘fitting in’, conflict situations, bullying, rejection. - <i>Friends</i>: problems with friend, friends being separated. - <i>Parents</i>: too little or too much parental interest, conflict with parent, parent getting mad, marital problems between parents, death of parent, parental problems such as depression, alcohol

Meso (continued)	Interpersonal (continued)	abuse, illness, and unemployment. - <i>Siblings</i> : rivalry, older siblings setting school expectations too high or setting a bad family reputation, (birth of) younger siblings.
	Media	- <i>Television</i> : being exposed to excessive television, especially violent programs.
Micro	Physical	- <i>Illness and health problems</i> : physical or developmental disabilities, (physical) disorders, traumatic injury, recurrent pain, chronic illness. - <i>Visits to the doctor or dentist</i> . - <i>Personal physical unsafety</i> : threat or theft of personal belongings, walking outside at night, playing outside alone, having an accident and getting hurt.
	Psychological	- <i>Adjustment and mental health problems</i> : emotional maladjustment (depression), behavioural adjustment problems, psychological disturbance, despair, frustration, anger, powerlessness. - <i>Life experiences</i> : physical or sexual abuse. - <i>Academic self-concept</i> : low self-esteem in school.
	Developmental	- <i>Developmental changes</i> : physical growth, hormonal changes, growth of formal operational thinking skills, maturing sense of personal and sexual identity, increased demands for self-organisation and responsibility, psychosocial issues of dependency, conformity, and independence. - <i>Developing worries</i> : about self, one's own expectations, social life, appearance, friends, world events.

Although one study argued that non-school sources of stress occur more than school-related stressors, academic/school stressors appeared to be the largest category in this literature study. Almost all literature agree that school is a demanding experience: it calls upon the child to work, attend with some consistency, and to marshal his or her resources, in sustained concentrated effort.

Academic stress is determined by students' perceptions of their academic performance or achievement. Especially test anxiety is mentioned very often with respect to stress. Indeed, tests are one of the most frequent school-based sources of stress. Fear of success and failure arise from different sources of stress, such as school work, discipline and classroom management procedures, extra-curricular activities, and public performances. In general, fear of failure is especially experienced by elementary students. Public performances are more experienced by girls, while boys suffer more from discipline as being stressful. Also younger students experience more stress from discipline procedures. School work is a large stressor, which can be even more stressful when the school culture is competitive. With respect to extra-curricular activities, only competitive aspects are mentioned as being stressful. However, it could be wondered whether the amount of activities plays a role as well.

The beginning of a new school year is a very different stressor for younger and older children. Obviously, toddlers entering kindergarten face very different challenges and demands than 12 year olds entering secondary education. Also interpersonal stressors within school are different across ages. Elementary children suffer most from not being liked by their

teacher or from failing to meet the expectations of their teacher. Older children (middle school) experience more stress when they have direct problems with their teacher.

Experiencing stress from peer interactions is more mentioned by girls. With respect to siblings, a few stressors are mentioned by the literature. Surprisingly, having a brother or sister with a disability, known as a substantial source of stress, is not mentioned as a stressor in the studied articles.

Being exposed to excessive television, especially violent programs, was mentioned as a stressor in two studies. However, the effect of media is not always easy to demonstrate. It is hard to get clear which children watch which television programs. In other words, are adjustment problems a cause or a result of watching violent programs? Children might experience stress due to violent programs, but they also might choose to watch these programs as a result of their maladaptive behaviours due to stress.

With respect to psychological stressors, adjustment and mental health problems are related to life experiences. Life experiences can be a stressor itself, but often mental health problems are due to life experiences.

6.4 Coping

The second research question was on children’s coping strategies. Based on the ways of coping model (problem-focused vs. emotion-focused coping) and the primary-secondary control model, 10 different ways of how children cope with stress were identified. These coping strategies can be read in box 4.

Box 4: children’s coping strategies

Category	Coping strategy
Primary control strategies	<i>Direct problem solving</i> : trying to think of different ways solve the problem, and actually working on it.
	<i>Problem-focused crying</i> : crying to elicit instrumental assistance from others.
	<i>Problem-focused aggression</i> : resolve problems through physical or verbal aggressive behaviour.
	<i>Problem-focused avoidance</i> : trying to directly avoid the experience of a stressful situation.
Secondary control strategies	<i>Social/spiritual support</i> : buffering stress by seeking social or spiritual support.
	<i>Emotion-focused crying</i> : crying to release pent-up feelings or to elicit comfort from others.
	<i>Emotion-focused aggression</i> : physical or verbal aggression to release pent-up feelings.
	<i>Cognitive avoidance</i> : avoid thinking about a stressful situation through various cognitive strategies; diversion and distraction.
	<i>Pure cognition</i> : reduce stress through fantasy or a shift in one’s way of thinking.
Relinquished control strategies	<i>Doing nothing</i> : giving up or making no effort to deal with the stressful circumstances or to reduce their stressful impact.

All positive coping strategies turned out to be effective, so direct problem solving and seeking for social/spiritual support are adaptive strategies. With respect to cognitive avoidance, both adaptive and maladaptive distraction strategies were found. Adaptive distraction strategies include positive activities such as playing, having fun, and physical exercising. Maladaptive distraction is negative, such as substance abuse and overeating. Pure cognition contains both positive and negative strategies as well. Most cognitions used as a coping strategy are positive, such as hoping for the best and trying to relax. These strategies are adaptive. However, some cognitions are negative. These negative cognitions (e.g. denying your feelings) were found to be maladaptive. Although many maladaptive strategies were identified (problem- and emotion-focused crying, problem- and emotion-focused aggression, problem-focused avoidance, and doing nothing), these negative ways of coping were found to be lowest in frequency. In other words, children make much more use of positive (i.e. adaptive) strategies. Adaptive coping strategies are more effective in reducing stress, resolve stressors more quickly, and improve self-confidence. A combination of positive strategies is thought to be most effective. However, there is no agreement yet about how coping efficacy and outcome should be investigated and assessed.

If a child faces too much stress and has difficulties to cope, the first step should be a realistic recognition of the problem. Schools can reduce the level of stress of their students by creating a predictable, orderly and structured environment, by establishing the teacher as an authority figure, and by setting clear expectations. However, to reduce stress and to improve coping, collaboration among educators, school psychologists, parents and children is needed. Interventions should be aimed at both adaptive problem-focused and adaptive emotion-focused coping skills. Coping skills are related to psychological adjustment: self-efficacy, self-concept and self-esteem contribute to effective coping, and effective coping enhances psychological adjustment. Although it is not clear what comes first, stress/coping interventions should aim at psychological adjustment as well, especially because it is self-efficacy, self-concept and self-esteem that suffer under conditions of stress.

6.5 Vulnerability factors and protective factors

Third, different protective and vulnerability factors with respect to stress were identified. A list of protective and vulnerability factors can be found in box 5.

Box 5: protective and vulnerability factors with respect to stress.

System	Protective factors	Vulnerability factors
<i>Environmental system</i>	Social resources available.	Lack of social resources.
	Balanced supportive family milieu.	Family conflict.
	Good mental health of family (members).	Poor mental health of family (members).
	Adaptive parenting styles.	Maladaptive parenting styles.
	Family structure.	Too much democracy.

	Good parent-child relationship. Traditional, nuclear family.	Poor parent-child relationship. Nontraditional family: step- or single-parent family.
	School: non-punitive, non-authoritarian, helpful teachers.	School: punitive, authoritarian teachers.
	School: focus on the child as a social being.	School: focus on academic achievement.
<i>Personal system</i>	Personality: self-confidence, self-worth, self-esteem, sense of mastery, social problem-solving skills, empathy.	Personality: high on emotionality (anger, fear), test-anxiety. Having a disability.
<i>Transitory conditions</i>	Positive life events. External support system. Participation in intervention programs.	Negative life events.
<i>Cognitive appraisal and coping skills</i>	Adaptive coping strategies. Locus of control: realistic control attributions.	Maladaptive coping strategies. Locus of control: ineffective attributions
<i>Health and well-being</i>	Good health and well-being. Good psychosocial functioning.	Poor health and well-being. Poor psychosocial functioning.

Within the environmental system, social resources are very important. Support from parents, siblings, friends and teachers makes it easier for children to adapt to stress. Parents have a large influence on the stress experience of their children, by creating a healthy family milieu and structure. Adaptive parenting styles aimed at reducing childhood stress are offering effective problem-solving techniques and strategies without taking over the entire problem-solving situation. On the other hand, offering too much support or adult direction are maladaptive parenting styles creating unreasonably high expectations or overprotection. Too much democracy in families is maladaptive as well: it forces the child to face an adult reality for which the child is not emotionally prepared. This can create (stressful) insecurity, which can be averted by enough family structure. Also a traditional nuclear family is thought to provide more security (and thus less stress) than a nontraditional family. Nowadays, many children grow up in (early) day-care centers, because the number of single-parent families and families with two working parents increases. Although growing up in a day-care center is often thought to be stressful, the effects are actually poorly understood.

Also schools are part of the environmental system. A balanced school climate makes children less vulnerable to stress. Teachers should not only focus on academic achievement and should be non-punitive, non-authoritarian, and helpful.

Besides environmental factors, also factors within the personal system were identified. It is often assumed that gender and age are important factors in experiencing stress. However, there is no agreement upon gender differences. This study could therefore not confirm the assumption that girls are more prone to stress than boys. Girls and boys do experience different stressors, but there is no difference in the amount of stress experienced. In other words, gender could not be identified as a risk factor. The same is for age: children of different ages experience different types of stress. While older children might face more

stressors, their coping strategies have also been developed more widely. As long as the increase of faced stressors is equal to the the increase of coping strategies, age itself is not necessarily a risk factor.

Personality dispositions do make a difference in the experience of stress. Self-confidence, self-worth, self-esteem, sense of mastery, social problem-solving skills, and empathy all serve as protective factors. On the other hand, being high on emotionality and suffering from test-anxiety are vulnerability factors. Also having a disability is identified as a risk factor. Due to their disability, these children face more frequent manifestations of stress. Unfortunately, they have often learned fewer strategies to deal with it. Having a disability can also harm other protective personality factors, such as self-esteem. In one study, special education children reported no greater stress than children in regular education. This could be due to the educational setting: a disability could be more prominent in contact with non-disabled peers. Being in a special education setting could be less stressful for disabled children, since they are not the only one having a disability and expectations might be lower in special education settings.

While environmental and personal factors are more or less stable, transitory conditions reflect life events. The experience of a life event is always influenced by protective and vulnerability factors from environmental and personal systems. Positive life events serve as protective factors and generally occur in six resource domains: parents, siblings, extended family, school, friends, and boy-/girlfriend. Participation in an intervention program can also be a positive life event. Negative life events such as family dysfunction, substance abuse, teen pregnancy, teen suicide, sexual abuse, and school dropout are vulnerability factors. They usually occur in eight stressor domains: physical health, home and money, parents, siblings, extended family, school, friends, and boy-/girlfriend. Except for 'physical health' and 'home and money' resource and stressor domains are the same. This illustrates the importance of balancing between protective and vulnerability factors: the same domain can have a protective function on it's one hand, and have a risk function on it's other hand.

Factors from environmental and personal systems and transitory conditions shape an individual's repertoire of coping skills (system of cognitive appraisal and coping skills). Having a repertoire of adaptive coping skills serves as a protective factor, while a repertoire of maladaptive coping strategies is a risk factor in experiencing stress. Locus of control also plays an important role. Ascribing successes to external (good luck) factors and ascribing failures to internal factors such as lack of ability are ineffective attributions. An ineffective locus of control can contribute to the experience of stress.

Health and well-being is a kind of personal outcome category: it is determined by environmental and personal factors, transitory conditions and coping skills. Obviously, a good health, well-being and psychosocial functioning has a protective function against stress, while

unhealthiness and poor psychosocial functioning creates even more stress. This is a cyclic view of stress: health and well-being is both an outcome and a personal factor. From this point of view, an unhealthy state as a personal risk factor can create stress, which can make a person's health and well-being even worse.

6.6 Implications for practice and research

In this study, academic stressors and environmental protective and vulnerability factors appeared to be the largest categories. Nevertheless, many models focus on individual characteristics and interventions are aimed at individual functioning. As De Anda et al. (1997) noted, the ideal place for intervention and prevention programs is the school, as school related stressors were clearly the highest in frequency. So the main implication for practice is that interventions should not only focus on the individual child, but on it's entire environment. A developmental systems model, as used in early intervention studies, could be very helpful in educational interventions as well. In such a model, the developmental outcomes of a child are determined by transactions between the child, caregivers and the environment (Guralnick, 2005). Childhood stress should also be viewed in a transactional way: it never is one stressor or factor that creates stress, but always a combination of stressors, factors, and circumstances. Therefore, interventions should always aim at the child and it's environment, which consists of at least family and school.

This is also true for the clinical practice of diagnosing: it should focus on both the individual and his environment. Also the cyclic aspect of stress should be taken into account: outcomes in terms of (mental) health and well-being become new stressors or protective/vulnerability factors in the next stage. This cyclic aspect is best met by accurately following the diagnostic cycle.

The same implication is for research: also research should not approach childhood stress as an individual phenomenon. It should always take the environment of a child into account, as well as the transactions between a child and it's environment (i.e. cyclic aspect). Research should focus on both circumstances at home and at school, and individual characteristics that promote stress, as well as the ways they influence each other.

The main characteristic of stress that came up in this literature study, is the ongoing interaction between an individual and his environment. The experience of stress always depends on the ways an individual values himself, the difficulty of a task or situation, and the support from the environment. The following master thesis research will take this interactional aspect into account.

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