Somatic complaints in childhood: How they are related to children's emotional and social functioning

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Chapter 1
General introduction

INTRODUCTION

Somatic complaints in children are a puzzling phenomenon as their etiology is poorly understood. Children's somatic complaints are by no means solely explained by medical causes such as infections or injuries (Croffie, Fitzgerald, & Chong, 2000; Goodman & McGrath, 1991). The current literature suggests that, because emotional processes incorporate activation of physiological systems, they can play a role in the development of somatic complaints (Cohen & Herbert, 1996; Hyams, & Hyman, 1998; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Jones, Dilley, Drossman, & Crowell, 2006; Mayer, 1996; Mayne, 1999; Nash & Thebarge, 2006; Segerstrom & Miller, 2004; Tsygos & Chrousos, 2002). Indeed, negative affect is strongly and positively associated with somatic complaints in children (Campo, et al., 2004; Diepenmaat, van der Wal, de Vet, & Hirasing, 2006; Mikkelsson, Sourander, Piha, Salminen, 1997; Muris & Meesters, 2004). Negative affect, however, is a very broad concept. Frequent or long term negative affect reflects a maladaptive emotional process (Garber, Braafladt, & Weiss, 1995; Papadakis, Prince, Jones, & Strauman, 2006; Silk, Steinberg, & Morris, 2003), but says little about the exact underlying psychological problems. Children's emotional functioning is strongly affected by cognitive-emotional processes and indirectly by certain social influences. The aim of this thesis is to identify a number of emotional and social influences important for understanding the development of somatic complaints in children. This first chapter is meant as an introduction to the studies described in this thesis explaining their relevance as well as their theoretical basis. First, the relevance of studying the etiology of children's somatic complaints will be made clear. Second, the emotional variables that were considered in this thesis will be described. Third, possible social influences will be considered. Fourth and finally, the further structure of this thesis will be clarified.

RELEVANCE OF STUDYING THE ETIOLOGY OF CHILDREN'S SOMATIC COMPLAINTS

The prevalence of somatic complaints in children is high, especially in middle childhood and adolescence (Perquin, et al., 2000; Petersen, Bergstrom, & Brulin, 2003; Roth-Isigkeit, Thyen, Raspe, Stoven, & Schmucker, 2004). About 25% of the children are bothered by recurrent or continuous complaints, such as headaches, abdominal pain, and fatigue for more than three months (Perquin et al.; Petersen et al.). This is disturbing because somatic complaints can affect many domains of the child's life: somatic complaints are for instance associated with decreased activity in hobbies and missing out on social activities with peers (Campo, Jansen-McWilliams, Comer, & Kelleher, 1999). Also, when psychological problems (partly) cause these somatic complaints, the psychological functioning of children with many somatic complaints is a problem on its own (Campo, et al., 2004; Diepenmaat, et al., 2006; Mikkelsson, et al., 1997; Muris & Meesters, 2004). In addition, somatic complaints developed in childhood can be quite persistent,

sometimes continuing to return into adulthood (Campo et al., 2001). When there is no adequate help available, somatic complaints will thus give rise to long term troubles for many children.

When children have frequent somatic complaints, parents sometimes seek *medical* health care for them (Janicke, Finney, & Riley, 2001; Claar & Walker, 1999). Especially when physicians cannot find any medical condition that can explain the presence of somatic complaints in a child, it is the general opinion that *psychological* therapy is warranted (Campo, et al., 1999; Claar & Walker, 1999; Eminson, 2007). Information about successful ways of helping children with many somatic complaints through psychological treatment is, however, very limited (Eminson). Even though some children thus might eventually receive psychological help, more knowledge about the psychological processes underlying somatic complaints is warranted in order to make the interventions more efficient. Moreover, not all parents seek help when their child experiences somatic complaints. Parents may not always be aware of somatic (or emotional) problems in their children, depending on the child's skill to talk about internal feelings (Meade, Lumley, & Casey, 2001): when children do not talk about their complaints, we cannot expect parents to know about these complaints. In addition, seeking medical health care depends on many factors other than symptom severity. For instance, the causes a parent sees for the somatic complaints, and the general attitude of parents towards seeking medical health care are associated with health care seeking (Janicke et al.; Claar & Walker). Because children are dependent of their parents in seeking health care, it is highly questionable whether children who visit outpatient hospital clinics and have a chance of eventually receiving psychological therapy differ from children who do not visit a pediatrician in the degree in which they experience problems. There are no interventions, let alone preventive measures for somatic complaints in general populations based on reducing somatic complaints by improving children's psychological well-being. The psychological help available may therefore also fail to reach many children with somatic complaints who are in need of this. We can thus conclude that, first of all, many children undergo medical examinations before receiving the psychological help they really need. Second, the help these children receive is not yet well geared to psychological problems of these children (as we do not fully understand the psychological functioning of children with many somatic complaints). Third, many children with frequent somatic complaints or at risk for developing these complaints do not receive any help at all. Finding out which psychological factors are important in understanding the development of somatic complaints in children is a precondition for solving these issues.

EMOTIONAL FACTORS IN RELATION TO SOMATIC COMPLAINTS IN CHILDHOOD

With respect to psychological influences on the experience of somatic complaints, the lion's share of attention has been given to emotional factors. This is

understandable considering the physiological component of emotions. Emotions steer our behavior (Oatley & Jenkins, 1996). When something for example makes you angry, you wish to change the situation to meet your own goals, whereas when you are scared, you may want to escape from the situation. These types of reactions are facilitated by physiological changes that are part of emotions (Mayne, 1999). During experiences of negative emotions arousal is increased (eg., heart rate, breathing rate, and muscle tension increase), making it possible to focus attention and perform a behavioral response. As such, emotions help us in our daily functioning (Frijda, 1994; Mayne). When emotions are not adequately processed, however, resulting in long-term or recurrent negative emotional states, the physiological changes can contribute to the experience of somatic complaints (Cohen & Herbert, 1996; Hyams, & Hyman, 1998; Kiecolt-Glaser et al., 2002; Jones et al., 2006; Mayer, 1996; Mayne; Nash & Thebarge, 2006; Segerstrom & Miller, 2004; Tsygos & Chrousos, 2002).

Research from a medical perspective has focused on general somatic problems that can arise under chronic stress (e.g., Segerstrom & Miller, 2004), and (more recently) on effects of stress on specific organs, such as the abdomen (eg., Bathia & Tandon, 2005; Hyams, & Hyman, 1998). Theories concerning emotional processing that may account for the development of somatic complaints stem mainly from the fields of psychiatry and psychology. The dominant theory in the field of psychiatry states that somatic complaints arise in people who insufficiently understand and verbally label their emotions. This theory is based on observations of Sifneos in psychosomatic patients:

> The ability … not only to recognize and express emotions but also to verbalize them is significant. Some patients experience a difficulty in this area. When they are asked to talk about how they feel they mention repetitively and endlessly only somatic sensations, without being able to relate them to any accompanying thoughts, fantasies, or conflicts. Others seem to be unable to specify what it feels like to be angry or sad, and a few individuals fail to differentiate between pleasant and unpleasant emotions…. I would like to introduce the word alexithymic (Greek *a*, lack, *lexis*, word, *thymos*, mood) to describe patients who present these difficulties. (Sifneos, 1972; pp. 81-82).

The alexithymia hypothesis thus states that problems of emotion awareness lead to the experience of frequent somatic complaints.

Other researchers, however, take a different view. In the field of health psychology, most attention is given to the theory of ‘sense of coherence’ (a feeling of situational control) developed by Antonovsky (1979, 1987). This theory states that individuals who perceive low feelings of control over situations interpret negative situations as highly stressful. These individuals will therefore often experience negative affect with high intensities that in turn will lead to somatic complaints. People who, in contrast, experience situations as predictable,

meaningful, and as something they can change for their benefit are said to have a strong 'sense of coherence' and it is assumed that they will show resilience when faced with negative situations. These people will develop few somatic complaints (Antonovsky, 1979, 1993; Pallant & Lae, 2002)[1].

These two dominant theories, and additional minor theories (see below) concern different aspects of emotional processing: whereas the alexithymia hypothesis has led to a debate between researchers about possible issues with emotion identification skills (e.g., De Gucht, Fischler, & Heiser, 2004; Rieffe, Meerum Terwogt, & Bosch, 2004), others have focused on intensity of emotion appraisal based on the concept of sense of coherence (e.g., Torsheim, Aaroe, & Wold, 2001), and there has been some attention for emotion regulation problems as well (e.g., Compas & Boyer, 2001). The different theories exist quite independent of each other: almost no theoretical links have been made between the theories and most research is conducted based on a single theory. The different theoretical frameworks do, however, not exclude each other. This fragmentation of theories and associated research causes complexity in taking stock of the literature.

One solution to nevertheless give a clear outline of the different theoretical frameworks is by making explicit which step and aspect of emotional processing they refer to. Many models of emotional processing exist (Scherer, 2000), but fortunately there is consensus about three basic steps: attention, appraisal, and response (see Scherer or Gross & Thompson, 2007 for reviews). Figure 1, depicts these three steps of emotion processing. We will first explain these three steps more extensively –with respect to children- and then give an outline of the existing theoretical frameworks.

The first step of attention is self-evident: emotions arise when children attend to a situation that is significant for them with respect to their goals and desires. However, some children might more consciously pay attention to these situations and this can influence the next step of emotion processing: appraisal. Appraisal is an individual's evaluation of the emotion-eliciting situation (Gross & Thomson; Scherer, 2000). Depending on how the situation relates to a child's motivation and goals, but also on the extent to which a child feels able to control or deal with this situation, he or she will experience a certain *type* of emotion with a certain *intensity* (Scherer; Sander, Grandjean, & Scherer, 2005). For example, imagine two children. One of them has a membership card for the Zoo and therefore quite regularly goes there. He enjoys this, but it is not a special experience for him. The other child does not like the Zoo at all, because he is compassionate about the animals' needs and believes it is wrong that the animals in the Zoo live imprisoned for the entertainment of people. When a school trip to the Zoo will be announced, the first child most likely will feel fairly happy: going to the Zoo is nice, but not something to get excited about. The second child on the other hand, will feel extremely sad that the school has planned a trip to the Zoo. The feeling of sadness

[1] Note that although alexithymia and sense of coherence are concepts that are more dominant in the field of psychiatry and health psychology respectively, they are studied by researchers from multiple disciplines.

will be more intense for a child who experiences little situational control (e.g., did not anticipate the announcement of this school trip).

This brings us to the final step of emotion processing: the response. The response is thought to include changes in neurobiological, experiential, and behavioral response systems (Gross & Thompson). Of most interest for this thesis is children's emotion regulation as unsuccessful emotion regulation will prolong physiological changes. In middle childhood, most children have learned several ways of dealing with their emotions (Fields & Prinz, 1997). This includes problems solving (where the situation is altered, see Figure 1), as well as cognitive emotion regulation strategies such as positive reappraisal that change a child's perception of the situation. In the example above, the second child can for instance decide to ask his or her parents permission to stay at home. Again, perception of control can influence the process of emotion processing at this step. Children who feel able to manage the situation and/or their emotions will make more effort and show more confidence in their emotion regulation (Zeman, Cassano, Perry-Parrish, & Stegall, 2006).

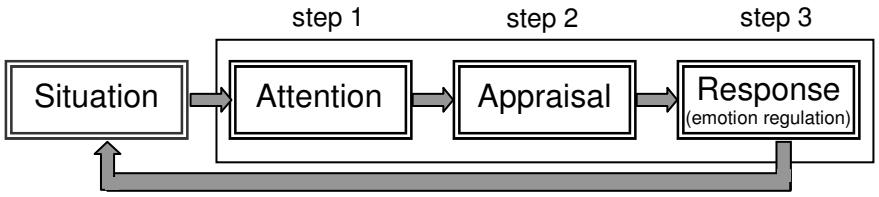

Figure 1
The "Modal Model" of emotional processing, adapted from Gross and Thompson (2007: Copyright permission provided by Guilford Press)

EMOTION IDENTIFICATION

According to the alexithymia hypothesis, emotional difficulties related to somatic complaints can be expected in the second step of emotional processing: emotion appraisal, possibly preceded by problems in the first step (i.e., insufficient attention for elements the situation that evoked the emotion). As explained before, the central problem expected in adults and children with somatic complaints is that they have difficulty with labeling of emotions and an inability to talk about feelings due to a lack of emotion awareness (De Gucht et al., 2004; Meade, Lumley, Casey, 2001; Rieffe, Meerum Terwogt, & Bosch, 2004; Taylor, Bagby, & Parker, 1997). In other words: the alexithymia hypothesis assumes a deficiency in the emotion identification aspect of emotion appraisal

We can find a shift in the theoretical framework that was formed in order to explain why people who experience difficulty with emotion identification would develop more somatic complaints than people who adequately identify their emotions. Sifneos identified alexithymia based on his own observations. Thus, the theoretical explanations for a possible link between somatic complaints and alexithymia came after the concept had been defined. Originally, it was thought

that alexithymia would result in a misattribution of normal psychophysiological reactions as somatic complaints (Frawley & Smith, 2001). This idea however, was invalidated by research showing that not many people seem to feel totally unaware of their emotions (Taylor & Bagby, 2000); people who experience many somatic complaints often strongly acknowledge the possibility that somatic complaints are caused by psychological factors (Lundh and Wangby 2002); and that children with frequent somatic complaints are even more aware than children with few somatic that emotional experiences involve somatic sensations (Rieffe, Meerum Terwogt & Tolland; 2004). The theoretical explanation for a possible link between alexithymia and somatic complaints is nowadays placed within the emotion process: poor emotion appraisal leading to less efficient emotion regulation (see Figure 1; Taylor, 2000). In other words, it is assumed that people who do not understand the reason why they experience negative emotions, are less likely to apply adequate solutions and thus are at risk for developing somatic complaints.

The introduction of the alexithymia concept has led to an enormous amount of research focused on the link between emotion identification skills and the experience of somatic complaints in adults (e.g. De Gucht, Fischler, & Heiser, 2004; Taylor, 2000; Taylor, Bagby, & Parker, 1997). Only recently has this link been adressed in children (Rieffe, Meerum Terwogt, & Bosch, 2004; Rieffe, Meerum Terwogt & Tolland, 2004). Despite the many publications on the topic of alexithymia, the evidence concerning the role of alexithymia in the experience of somatic complaints by adults or children is inconclusive. Almost all studies have used self-reports of somatic complaints and these studies seem to support the alexithymia hypothesis. When studying emotions and moods, self-reports are most often used, as moods and emotions are a subjective experience (Cole, Dolezal, Murray, & Canzoniero, 1999). The validity of self-reports to measure emotional *abilities*, however, has been criticized (Linden, Wen, & Paulhus, 1995; Rief Heuser, Fichter, 1996; Tull Medaglia, Roemer, 2005). There are only a few initial studies conducted with measures of alexithymia other than self-reports. These studies failed to support the alexithymia hypothesis (Rief et al., 1996; Rieffe, Meerum Terwogt, & Bosch, 2004; Tull, et al.). Yet, only one of them (Rieffe, Meerum Terwogt, & Bosch) was conducted in children. This signals that we need to further investigate the alexithymia hypothesis for explaining somatic complaints in childhood with a multi-method design.

FEELINGS OF CONTROL

Besides a *deficiency* in conscious appraisal as is assumed under the alexithymia hypothesis, there is also literature about *differences* in appraisal (still step 2 of emotional processing) that can account for maladaptive emotional processing. As shown in the previously described example of the announced school trip to the Zoo, there are diversities in the experienced emotions under the same or similar circumstances (Brown & Cowan, 1988). In part, these differences can be explained by the meaning of a situation with regard to a child's own purposes and goals.

Yet, although children's emotion appraisal is depended on quite random child-situation interactions, appraisal is also determined by a child's personal evaluation style. Confirming Antonovsky's sense of coherence theory (1979, 1993), it has been found that some children are inclined to view potentially negative situations as predictable, meaningful and as something they can change for their benefit, whereas other children perceive little control over situations. For these children who experience low situational control, potentially negative situations cause evaluations of hopelessness or even helplessness. The emotional process of these children is maladaptive, often resulting in symptoms of internalizing negative affect disorders.

It has not yet been firmly assessed whether experiencing little situational control also contributes to the development of somatic complaints in children. There are, however, some preliminary results supporting this idea. First, studies in adults have shown that the experience of more situational control indeed not only is a protective factor for emotional, but also for somatic problems (Eriksson & Lindström, 2006; Pallant & Lae, 2002). Second, a cross-sectional relationship between low experienced situational control and more self-reported somatic complaints has been found in children (Torsheim, Aaroe, & Wold, 2001).

Besides experienced situational control, children's experienced control over emotions might also influence their appraisals. More specifically, children with low emotional self-efficacy possibly will perceive more stress when confronted with negative situations because they feel they will be unable to cope with the situation: not because they feel they have no influence, but because they feel unable to exert any influence. Like a higher general self-efficacy is associated with a better psychological functioning by influencing the thoughts and actions of people (Luszcynska, Gutierrez-Dona, Schwarzer, 2005), it is likely that self-efficacy with regard to ones own emotional abilities will influence the way children deal with emotions. However, emotional control in relation to children's experience of somatic complaints has not yet been studied.

Note that both perceived emotional control and the before mentioned perceived situational control are formed in middle childhood, when children monitor their own thoughts, feelings and behavior from an outsider's perspective (Selman & Byrne, 1974) and evaluate their initial appraisals and consequences of their actions (Eccles, 1999). In adulthood, these feelings of control have become quite stable and are assumed difficult to challenge (Antonovsky, 1997; Petrides & Furnham, 2001). This further stresses the importance of understanding influences of perceived situational and emotional control in childhood, where the development of these variables can still be manipulated.

EMOTION REGULATION STRATEGIES

The last step of emotional processing has rarely been addressed as a possible factor in the etiology of somatic complaints. Given the general notion that somatic complaints can be caused by emotional problems, surprisingly little research has been conducted in order to asses aspects of emotion regulation with respect to the

development of somatic complaints in children (Compas & Boyer, 2001). Studies that have focused on coping in children with somatic complaints, were mostly conducted to asses which coping strategies these children use in order to deal with pain or health problems instead of more general situations. Thus, although we know that children have certain resources to cope with negative situations, we need more information about which of these resources contribute to fewer somatic complaints in children.

When considering emotion regulation, two processes of specific interest are worry and rumination. Borkovec, Robinson, Pruzinsky and DePree (1983) described worry as: "a chain of thoughts and images, negatively affect-laden and relatively uncontrollable" (p.10). Rumination on the other hand is referred to as: "behaviors and thoughts that passively focus one's attention on one's depressive symptoms and on the implications of these symptoms" (Nolen-Hoeksema, 1998, p. 239). Thus, worry and rumination both cover repetitive, non-productive thoughts. However, whereas worry takes place in the anticipation of events, rumination reflects negative cognitions that are based on passed experiences. Nevertheless, although it has been shown that worry and rumination are distinct processes in adults, they are highly correlated (Fresco, Frankel, Mennin, Turk, & Heimberg, 2002). In children there seems to be an even greater overlap between worry and rumination, since it has been found that it is not possible to measure the two constructs separately (Jellesma, Meerum Terwogt, Reijntjes, Stegge, & Rieffe, 2005). When focusing on children, therefore it makes more sense to speak of non-productive thoughts instead of artificially separating thoughts that are supposed to reflect either worry or rumination.

It is thought that negative thoughts initially have a function, that is: to make a person aware or maintain a person's awareness that there is a negative situation that has to be solved and to prepare the person for a "fight or flight" reaction (Brosschot, Gerin, & Thayer, 2006). Non-productive thoughts, that are repetitive without positive outcomes, are a clear signal that people have difficulty in regulating their emotions by using adaptive emotion regulation strategies. Unfortunately, little attention has been given to the effect of non-productive thoughts on somatic complaints. In their review study, Broschott et al. showed that in adults, non-productive thoughts seem to increase the duration of negative emotional feelings and the associated physiological arousal. Although this is likely to be true in children as well, the finding that children's available coping strategies differ from those of adults and that non-productive thoughts cannot be further discriminated in children, emphasize the importance of studies at younger ages. It is clear that our knowledge of the relationship between emotion regulation and children's somatic complaints is very limited.

SOCIAL FACTORS IN RELATION TO SOMATIC COMPLAINTS IN CHILDHOOD

Besides the previously described cognitive-emotional processes, there is also some debate about social factors that might contribute to children's somatic complaints. There are several quite different processes through which social factors may have an influence on children's somatic complaints. For example, some might cause negative emotions, help with emotion regulation or have a more direct influence on somatic complaints by linking them with positive emotions. These will now be explained.

PARENTAL INFLUENCES

One of the social influences on somatic complaints in children is expected from parents. Following the behaviorists approach, it is thought that somatic complaints will be reinforced when they are followed by positive consequences (Fordyce, Fowler, Lehmann, & DeLateur, 1968), in other words: are followed by positive emotions. In children, parents are the ones who influence the consequences of somatic complaints the most. They are able to keep their children home from school, give them extra treats or relieve them of chores; behaviors referred to as 'parental solicitousness' (Walker and Zeman, 1992).

A careful analysis of the available results does not yet result in a conclusive answer as to the role of parental reinforcement. The results of several studies that included the relationship between parental solicitousness and the frequency of somatic complaints seem to contradict the hypothesis of reinforcement (Levy et al., 2004, Peterson & Palermo, 2004, Merlijn et al., 2003, Walker, Claar, & Garber, 2002). Non-linear relationships, however, have not yet been studied. Possibly, there is a threshold for parental solicitousness to have an effect on the frequency of complaints. Moreover, parental solicitousness might have a stronger effect in groups of children who are at risk for somatic complaints.

In addition, the samples of previously conducted studies all included adolescents. Adolescents are less dependent on their parents: as children get older, their autonomy increases (Von Salisch, 2001). Perhaps then, in pre-adolescent children parents can influence the frequency of somatic complaints when they attach positive consequences to reported health complaints, whereas in adolescence the influence of parents in this respect disappears. In conclusion, we need more empirical studies to substantiate whether operant conditioning can be of influence in children's somatic complaints.

PEER INFLUENCES

The influence of peers on the experience of somatic complaints can go two ways. First, peers interactions can cause negative affect when they are viewed as problematic and negative (Barrett & Heubeck, 2000; Oldehinkel, Rosmalen, Veenstra, Dijkstra, & Irmel, 2007). As could be expected based on the earlier explained connection between negative affect and somatic complaints, it has been

found that children's experience of problems with peers also (indirectly) contributes to children's reports of somatic complaints (Gadin & Hammerstrom, 2003; Murberg & Bru, 2004; Odegaard, Lindbladh, & Hovelius, 2003). However, these findings are based on self-reports. Similar to the studies that addressed the alexithymia hypothesis with solely self-reports, we are again faced with an interpretation problem. It might be that children who are disliked by others develop somatic complaints, but it is also possible that the role of internal child-variables on children's perception is (more) important. This would be in line with the finding of Boyer et al. (2006) who showed that children with pain complaints have an attention bias towards social threat-related words. Possibly, child-variables such as social insecurity or social anxiety contribute to the development of somatic complaints rather than a child's actual status of being liked or disliked by other children. This possibility needs further attention.

Second, peers can also provide support. Especially friends are important for children's emotional well-being, in particularly best friends (Sullivan, 1953). In middle childhood, they provide children with the opportunity to share experiences and to learn ways of dealing with negative emotions (Newcomb & Bagwell, 1995). This talking about emotions with a best friend can increase felt support. Moreover, a friend can further stimulate successful emotion regulation by giving examples of strategies and provide feedback on children's emotional functioning (LaFreniere, 2000). Since it helps children with emotion regulation, it is likely that disclosure to a friend also has a reducing effect on the frequency with which children experience somatic complaints.

STRUCTURE OF THE THESIS

In this chapter, different psychological variables that might be of relevance for the etiology of children's somatic complaints were described. In the next chapters, research will be presented that was conducted to further verify the theoretical assumptions. In chapter 2, the emotional and somatic complaints of children from medical outpatient clinics with abdominal complaints (as a very common childhood complaint) will be compared to that of children from the general population. This can give further justification for the relevance of studying psychological influences on children's somatic complaints in a general population rather than selecting only those children who receive medical health care. In chapter 3, the alexithymia hypothesis is studied with different measures besides self-reports. Moreover, the self-reported answers are studied on an item-level to further understand the meaning of previously found differences between children with few and many somatic complaints on scales used to assess emotion identification and communication problems. In chapter 4, situational and emotional control are studied with respect to children's somatic complaints. It is analyzed whether feelings of control can indeed account for differences between children in the frequency with which they experience somatic complaints and whether changes in feelings of control indeed are accompanied by changes in the levels of somatic complaints in individual children. In chapter 5, the last step of the emotion process is addressed. It is examined which emotion regulation strategies contribute to the development of somatic complaints in children, and in particular, what the influence is of non-productive thoughts. Besides emotion regulation, symptoms of depression will be taken into account to further support the direction of causality between negative affect and children's somatic complaints, but more importantly to verify whether emotion regulation strategies are independently associated with somatic complaints or not give rise to somatic complaints before they have lead to symptoms of a mood disorder. In chapters 6 and 7 social influences are concentrated on. In chapter 6 the possibility of parental reinforcement is further analyzed, addressing each of the alternative explanations for previous research that seemed to contradict the possibility that parents can reinforce somatic complaints in their children. In chapter 7, peer influences are analyzed with two studies: one assessing whether perceived or actual peer problems contribute to the experience of somatic complaints and one studying the possibility that disclosure to best friends has a beneficial effect. In the last chapter (chapter 8) the results will be integrated and further discussed.

This thesis is composed of several independent papers. Some overlap between the chapters is therefore inevitable.