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

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Chapter 4
Feeling in control: A longitudinal study of sense of coherence and emotional self-efficacy in relation to somatic complaints in childhood

The aim of this study was to analyze the relationships between perceived situational control and perceived emotional control and children's experience of somatic complaints. The study included four waves of data collection with 6 months in between each wave. The sample consisted of 324 girls and 393 boys, *M*age=10;3, *SD*=8.5 months at the first time of data collection. The participants filled out self-report questionnaires assessing perceived situational control (sense of coherence), perceived emotional control (emotional self-efficacy), and experienced somatic complaints. A series of multilevel model analyses showed that higher levels of situational and emotional control independently contributed to the predictions of fewer somatic complaints in children. These results suggest that children's subjective experience of situations and own emotional capabilities play a role in the development of common somatic complaints in childhood.

INTRODUCTION

Fear of being late for school, being sent to the principal, feeling threatened by peers: these are all examples of situations that can be stressful for children (Muldoon, 2003). Stress is a normal reaction to negative situations in life: it is a preparation to face challenging or threatening circumstances (Ursin & Eriksen, 2004). For instance, when in fear of being late for school, running would be an adequate response. Physiologically, these kinds of behavioral responses are facilitated by activation of the autonomic nervous system and hypothalamo-pituitary-adrenal axis (McEwen, 2007). However, despite this functionality of stress, for some children stress can become *dys*functional, causing somatic complaints to arise (Walker, Garber, Craig, Smith, Van Slyke, & Claar, 2001). Recent studies have shown that the prevalence rates of common stress related somatic complaints such as headaches and fatigue are disturbingly high in childhood (Perquin et al., 2000; Petersen, Bergström, & Brulin, 2003; Petersen, Brulin., Bergstrom, 2006; Roth-Isigkeit, Thyen, Stöven, & Schmucker, 2004). In this study we strive for an advanced understanding of individual differences in the frequency of these somatic complaints. We will not focus on stressful events. Instead, we will examine the extent to which children's perceived control contributes to the frequency with which children experience somatic complaints.

Although daily stressors and somatic complaints are positively related (Walker, Garber, Craig, Smith, Van Slyke, & Claar, 2001), the frequency of stressors does not seem to be the best predictor of which children will report more somatic complaints than others. This can be explained by similar stressors evoking quite different levels of stress in individual children. Brown and Cowan (1988) for example showed that whereas there is little variation in children's ratings of the degree that major life events can be upsetting, such as death of a parent (M = 4.90, SD = 0.44 on a five point scale), a daily stressor such as a bad mark on a test, is upsetting for some children but less so for others (M = 3.17, SD = 1.12). Walker et al. found that the relationship between daily stress and somatic complaints is qualified by children's subjective experiences. This suggests that subjective experiences contribute to our understanding of why some children develop many somatic complaints whereas other children are seldom bothered by somatic complaints.

The idea that perceived control influences children's experience of somatic complaints is supported by the literature about stress and somatic complaints in adults. It has been shown that people's cognitions influence the perception of stress (Ursin & Eriksen, 2004). These cognitions can concern the appraisal of *external situations*, but also an individual's own perceived potential of *emotionally* dealing with the situation (Ursin & Eriksen). When adults think they have little control over situations and/or the emotions that arise, they are at risk for sustained high levels of arousal and subsequent somatic complaints (Sapolsky, 2004; Ursin & Eriksen). These two aspects of control are probably also relevant when considering

the frequency with which children experience somatic complaints. They will now be discussed in further detail.

FEELING IN CONTROL OF SITUATIONS: SENSE OF COHERENCE

Similar situations can be appraised quite differently by individual children. Consider the example of a school trip to the Zoo. One child might feel scared and unable to oversee what is going to happen, such as where to wait for the other children, and how to keep track of the group once in the Zoo. Yet, another child might feel confident that everything will work out fine and expect no problems in staying close to the group. This is a difference in experienced situational control. Some children easily feel that situations in life just happen to them. Other children generally feel that situations in life are comprehensible, meaningful and manageable, and these children will most likely experience low levels of negative affect and find adequate solutions when coping with negative situations`. This last way of perceiving the world is what Antonovsky (1979, 1993) refers to as a strong 'sense of coherence'.

In middle childhood and early adolescence, children's development is characterized by increasing autonomy. They become more independent from adults, for instance in going to school, and maintaining peer relationships (Santrock, 1992). At this age, children also start to process experiences more consciously: they make plans and coordinate their behavior. Moreover, children evaluate their own appraisals, behavior and consequences of their own actions (Eccles, 1999). Erikson referred to a period of industry versus inferiority (Eccles), indicating that children learn to be competent and productive, but feel a sense of inferiority if they do not succeed. Variance in experienced sense of coherence can be expected at this age, with children having high levels of sense of coherence presenting few somatic stress symptoms. After all, because children are monitoring themselves in interaction with their environment, they develop a sense of how much they understand situations and are able to influence these situations.

Most studies assessing the relationship between sense of coherence and somatic complaints have been conducted in adults. It has only recently been shown that sense of coherence and the presence of common somatic symptoms in children are negatively associated (Jellesma, Rieffe, Meerum Terwogt, Kneepkens, 2006; Torsheim, Aaroe, & Wold, 2001). The extent to which sense of coherence can account for differences between children in the development of reported somatic complaints has not yet been studied.

FEELING IN CONTROL OF EMOTIONS: EMOTIONAL SELF-EFFICACY

The increasing autonomy of children in middle childhood refers not only to their behavior. As children get older, they also start to depend less on others in their regulation of internal feelings, but rely more and more on their own skills in dealing with emotional experiences (Saarni, 2000). Similar to sense of coherence, children at this age also show introspection concerning their emotional skills. In other words: children develop what we will refer to as 'emotional self-efficacy' (in

other contexts also referred to as 'trait emotional intelligence'; Petrides & Furnham, 2000, 2001).

Emotional self-efficacy refers to something quite different from an individual's performance measured emotional skills. After all, emotional self-efficacy is part of a person's self-image and can be based on diverging variables besides emotional skills, such as the nature of ones group of reference to meta-cognitive abilities and the tendency to be self-critical. Indeed, the correlation between emotional self-efficacy and emotional abilities is low (Matthews, Emo, Funke, Zeidner, Roberts, Costa, & Schulze, 2006). In this article, we focus on children's feelings of control in relation to somatic complaints and therefore used children's self-reported emotional self-efficacy.

Little research has been conducted assessing emotional self-efficacy in childhood. Nevertheless, in one recent study a negative association was found with stress related variables. Children who experience more emotional self-efficacy, report less negative affect and choose more appropriate ways of dealing with negative circumstances. Moreover, emotional self-efficacy was indeed negatively related to somatic complaints (Mavroveli, Petrides, Rieffe, & Bakker, 2007), the outcome we focus on in the current study. Thus this initial finding supports the idea that emotional self-efficacy is associated with fewer somatic complaints arising in childhood. Yet, the development over time has never been addressed.

THE PRESENT STUDY

Sense of coherence and emotional self-efficacy have both proven to be associated with concurrent levels of somatic complaints in children. Yet, it has not yet been studied to what extent these two variables can predict future variations in somatic complaints. In other words: it has not been examined whether differences in experienced control contributes to explaining differences in the frequency with which children report somatic complaints. Moreover, the two forms of experienced control have never been studied simultaneously with respect to somatic complaints. It can nevertheless be expected that sense of coherence and emotional self-efficacy are related. Both variables reflect a form of self-perceived control. Both children's sense of coherence and emotional self-efficacy are assumed to arise and further develop in middle childhood. We therefore analyzed the longitudinal relationship between sense of coherence, emotional self-efficacy and somatic complaints, taking into consideration the unique effects of both independent variables. We expected that both a strong sense of coherence and a high emotional self-efficacy protect children from developing many somatic complaints and can therefore explain differences between children in the frequency of self-reported somatic complaints over time.

For this study, four waves of data collection with 6 months in between each assessment were used. We focused on middle childhood/ preadolescence ($8^1/_2$ – $12^2/_3$ year olds at first assessment). From this age on, it has been shown that girls report more somatic complaints than boys (Perquin et al., 2000). For this reason, we controlled for gender. We focused on middle childhood because the socio-

emotional and cognitive level of children makes it possible to reflect upon one's own feelings. Self-reports may in general be valid and reliable at younger ages (Olson, Radecki, Frintner, Weiss, Korfmacher, Siegel, 2007; Varni, Limbers, & Burwinkle, 2007), but as we described above, awareness of emotional-self efficacy and sense of coherence most likely arises in middle childhood. Self insight into these feelings is unlikely at younger ages. There is an increase in children's levels of somatic complaints with age. We analyzed change over time. The cross-sectional amount of variance in the age of the children in our sample was not as large as usually expected change to occur. We nevertheless also controlled for the variation in age at the beginning of the study.

METHOD

PARTICIPANTS

The data were collected as part of a larger project in which various psychological influences on children self-reported somatic complaints were examined. Participants were 717 children (90% participation rate). In our sample, 55% of the children were boys. The mean age of the children at the initial survey was 10 years and 3 months, *SD* =8.5 months. Of the 717 children considered in the analysis, 93% completed all four surveys. The complete sample was used for the estimation of the models described in the Results section (which is possible in multilevel analyzes). We asked parents socio-demographic information to be returned in a pre-paid university envelope. Most parents cooperated (78%), indicating that almost all children (90%) came from a two-parent family and were of Dutch origin (93%). All ranges of income were represented in our sample, with a median net monthly income of € 2000-2600. Written parental consent was obtained prior to the conduct of the study.

PROCEDURE

This study was conducted at 11 regular primary schools that were part of a school network in the Netherlands. Parents were informed about the study with information letters that were handed out to the children in the classroom for taking home. Informed consent forms that included a brief abstract of the information letter were subsequently distributed to the parents, including a pre-paid University envelope. Data were collected four times, each with a half year period in between. The children completed self-report questionnaires, only part of which was used for analyses in the current article. The questionnaires were completed within 1,5 to 2 hours, on two days in successive weeks, in order to maximize the children's levels of attention and comfort in participating in the study. At any time during the assessments, the children were able to ask questions. Part of the parents also participated in the project. All parents received subsequent information about psychology and research focused at somatic complaints through a school paper and a website. However, study outcomes were not shared at first in order to prevent any effects on the results of subsequent data collections.

MEASUREMENTS

Emotional self-efficacy was measured with the Trait Emotional Intelligence Questionnaire-Adolescent Short Form (Mavroveli et al., 2007; Petrides, et al., 2006). The scale consists of 30 items. An example of an item is: "It's easy for me to talk about my feelings to other people". Children indicate on a seven point Likert scale to what extent they disagree or agree. A total score is computed that reflects the mean of all items. The perceived emotional competence scores can therefore vary between 1 and 7. The questionnaire had a good internal consistency on all measurement occasions (mean Cronbach's alpha = .84).

Sense of Coherence was measured with the children's version of the Sense of Coherence Questionnaire (Jellesma, Rieffe, Meerum Terwogt, & Kneepkens, 2006). An example of an item is: "How often do you have the feeling that you are in an unfamiliar situation and don't know what to do?" The items are scored on a five point scale. For 11 items the response format is: *very often, often, sometimes, seldom, never*. Two items that are recoded have a different response format: *like it a lot, like it, it is OK, don't like it, don't like it at all*. The questionnaire had a good internal consistency on all measurement occasions (mean Cronbach's alpha = .82).

Somatic complaints were measured using the Somatic Complaint List (Jellesma, Rieffe, Meerum Terwogt, 2007). This questionnaire consists of 11 items on a five point scale from *(almost) never* to *quite often*. All somatic complaints referred to in this questionnaire are common in childhood and rarely fully explained by a medical problem. An example of an item is: "I (almost) never/seldom/sometimes/often/quite often have a headache"). This questionnaire also had a good internal consistency on all measurement occasions (mean Cronbach's alpha = .83).

STATISTICAL ANALYSES

We analyzed our data with multilevel modeling (software MLWin). The children had self-reported on somatic complaints, trait emotional intelligence and sense of coherence four times. Thus, we had repeated measures, the scores on the three variables being nested within individuals. The answers of an individual on the different times of assessment are expected to be dependent. With multilevel modeling this hierarchy in the data is taken into account. Somatic complaints are described as a function of parameters on two levels. On Level 1, within person variance in somatic complaints is described, on Level 2, differences between individual children are described.

We fitted several models in order to analyze the effects of emotional self-efficacy and sense of coherence on the development of somatic complaints. With these models we examined the same time, but also the longitudinal effects. Same time effects are referred to as contemporaneous effects. They resemble correlations between variables measured at the same point of time. Longitudinal effects are the effects found over time and are referred to as lagged effects. In our models, we predicted the developmental trajectories of somatic complaints, using the self-

reports of somatic complaints at the different times of assessment as the dependent variable. Because sense of coherence and emotional self-efficacy could also changes within children, we shifted the data in order to examine the lagged effects taking this into account. Emotional self-efficacy and sense of coherence measured at Time 1, Time 2, and Time 3 were used for the prediction of somatic complaints at Time 2, Time 3, and Time 4.

RESULTS

DESCRIPTIVES

The means and standard deviations for each of the variables are presented in Table 1. There was hardly any change in the overall level of somatic complaints even though there were slight variations, Wilks'λ = .98, $F(3, 660) = 3.70$, $p = .01$. The overall group effect for emotional self-efficacy showed an increase with time Wilks'λ = .90, $F(3, 660) = 25.81$, $p < .01$. The same was true for sense of coherence, Wilks'λ = .91, $F(3, 660) = 22.18$, $p < .01$.

Table 1

Mean scores and standard deviations for somatic complaints, emotional self-efficacy, and sense of coherence at the four times of assessment.

Variable	Time 1 *M* (*SD*)	Time 2 *M* (*SD*)	Time 3 *M* (*SD*)	Time 4 *M* (*SD*)
Somatic Complaints	$1.91_{ab}(0.63)$	$1.95_{a}(0.59)$	$1.94_{ab}(0.58)$	$1.89_{b}(0.55)$
Emotional Self-Efficacy	$4.72_{a}(0.70)$	$4.90_{b}(0.73)$	$4.95_{bc}(0.76)$	$4.94_{c}(0.76)$
Sense of Coherence	$2.80_{a}(0.53)$	$2.90_{b}(0.53)$	$2.95_{b}(0.58)$	$2.98_{b}(0.55)$

Note. Means on the same row that do not share subscripts are significantly different at α=.05.

VARIANCE DISTRIBUTION: VARIANCE BETWEEN AND WITHIN INDIVIDUALS

The first model (Model A) was an "unconditional means model". This model was fitted in order to examine how much of the variance in somatic complaints reflects differences between individuals and how much of the variance is caused by variations in somatic complaints within individual children. In the unconditional means model, somatic complaints of individuals were explained by a constant (intercept), not taking into account instability over time, as this could explain part of the variance. The within person variance (Level 1) reflects the variance of somatic complaints around this constant. The between person variance reflects the variance between individuals, thus the amount of variance found in the individual levels of somatic complaints. Based on these variances, the intraclass correlation coefficient could be computed. The intraclass correlation coefficient describes the proportion of the total outcome variance in somatic complaints that is interindividual (between children). We found an intraclass correlation of .57, meaning that 57% of the total variation in somatic complaints was attributable to differences between children and 43% of the total variation was attributable to intra-individual variations.

CONTROLLING FOR TIME EFFECTS

In model B, we added time as a predictor. This way, we could control for variance in somatic complaints that could be explained by time. The model now consisted of a begin score (intercept) and a rate of change (slope). Model B shows a significant, but negligible decrease in somatic complaints over time. Change was negatively associated with the begin score (r = -.43). This means that children who experienced relatively more health complaints at the first assessment overall showed stronger decreases and smaller increases in somatic complaints compared to children who had lower begin scores, which probably reflects regression to the mean (Streiner, 2001).

EFFECTS OF GENDER AND AGE ON SOMATIC COMPLAINTS

By adding gender and age to the model (Model C), we controlled for the effect of these variables. As expected, age was unrelated to somatic complaints within the age range used in this study. We predicted boys would have fewer complaints than girls, which was indeed the case. Therefore, gender could explain part of the variance between children in somatic complaints.

SENSE OF COHERENCE AND EMOTIONAL SELF-EFFICACY AS PREDICTORS OF SOMATIC COMPLAINTS

Next, we added the lagged and contemporaneous effects of emotional self-efficacy (Model D) and sense of coherence (Model E). The contribution of these variables in understanding somatic complaints was thus determined for emotional self-efficacy and sense of coherence separately. It is clear that taking into account individual differences in control contributes to the explanation of within person variation, especially when sense of coherence is included in the model (21% of the within person variance explained). This indicates that although there is little systematic overall change in the levels of somatic complaints when considering the group, individual's levels of somatic complaints fluctuate over time. These effects all were significant, suggesting that both emotional self-efficacy and sense of coherence are likely to be causally related to somatic complaints. Children with higher scores on emotional self-efficacy and a stronger sense of coherence developed fewer somatic complaints. Moreover, Model E indicates that decreases in somatic complaints over time are attributable to an increase in sense of coherence. As expected, feelings of control were useful variables in the prediction of somatic complaints.

Table 2

Parameter estimates and fit indices (standard errors are in brackets).

Parameter	Model A	Model B	Model C	Model D	Model E	Model F
FIXED EFFECTS						
Intercept (initial status)	1.928*** (0.018)	1.959*** (0.022)	2.028*** (0.029)	1.999*** (0.026)	3.227*** (0.064)	3.077*** (0.070)
Gender			-0.125*** (0.036)	-0.092*** (0.032)	-0.087*** (0.030)	-0.081*** (0.029)
Age			0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	-0.000 (0.002)
Time (rate of change)		-0.032*** (0.011)	-0.031*** (0.011)	-0.021** (0.011)	-0.009 (0.010)	-0.012 (0.011)
Lagged EmoSelf-Efficacy				-0.047** (0.017)		0.002 (0.018)
Contemporaneous EmoSelf-Efficacy				-0.216*** (0.017)		-0.100*** (0.018)
Lagged SOC					-0.061*** (0.020)	-0.037* (0.022)
Contemporaneous SOC					-0.032*** (0.002)	-0.026** (0.022)
VARIANCE COMPONENTS						
Level-1: Within person	0.142*** (0.005)	0.121*** (0.007)	0.121*** (0.007)	0.121*** (0.007)	0.111*** (0.006)	0.111*** (0.006)
Level-2: In initial status	0.185*** (0.013)	0.230*** (0.018)	0.226*** (0.018)	0.168*** (0.015)	0.167*** (0.015)	0.156*** (0.014)
In rate of change		0.020*** (0.005)	0.020*** (0.005)	0.021*** (0.006)	0.017*** (0.005)	0.017*** (0.005)
Covariance		-0.029*** (0.008)	-0.029*** (0.008)	-0.029*** (0.007)	-0.033*** (0.007)	-0.031*** (0.007)
GOODNESS OF FIT						
Deviance	2922.834	2896.650	2884.777	2694.983	2470.288	2438.683
AIC	2928.834	2908.650	2900.777	2714.983	2490.288	2462.683
BIC	2931.401	2913.783	2907.621	2723.538	2498.843	2472.949

* $p < .10$, ** $p < .05$, *** $p < .001$

Note: age, emotional self-efficacy, and sense of coherence were grand-mean centered; EmoSelf-Efficacy = Emotional Self-Efficacy; SOC = Sense of Coherence

THE UNIQUE EFFECTS OF SENSE OF COHERENCE AND EMOTIONAL SELF-EFFICACY ON SOMATIC COMPLAINTS

Emotional self-efficacy and sense of coherence are strongly associated ($r = .55$, $p < .01$). We wished to understand the unique effects of these two aspects of control on somatic complaints. Therefore we fitted Model F, that included the effects of emotional self-efficacy *and* sense of coherence. It shows that whereas the lagged effect of emotional self-efficacy is no longer significant when the effects of sense of coherence are taken into account, the contemporaneous effect of emotional self-

efficacy still makes a contribution in explaining children's somatic complaints. We found interaction effects between emotional self-efficacy and sense of coherence to be insignificant (not reported here).

COMPARING THE PREDICTIVE VALUE OF THE MODELS

We compared the six previously described models in order to determine which model is most useful in predicting the development of somatic complaints. For model comparison, we computed three goodness of fit indices. The deviance compares the log-likelihood for a model with that of the saturated model, similar to the residual sum of squares in regression analysis. Smaller deviances indicate a better fit. Since the models we fitted were not nested (models D and E contain different sets of parameters), it was not possible to compare them by testing the difference in deviance. Two additional statistics were computed: the Akaike Information Criterion (AIC) that corrects for the number of parameters and the Bayesian Information Criterion (BIC) that corrects for the number and parameters and sample size (Singer & Willett, 2003). The goodness of fit statistics indicate a better fit for Model E that includes sense of coherence than Model D with emotional self-efficacy. Yet, model F, has the best fit. This indicates that the effect of emotional self-efficacy, especially the contemporaneous effect is useful in predicting somatic complaints, even when information about situational control is already taken into account. The final model explained 29% of the total variance in somatic complaints.

DISCUSSION

The results of this study support our idea that children's feelings of control are of influence on the frequency with which children experience somatic complaints. Situational and emotional control were for the first time studied simultaneously with respect to somatic complaints that are common in childhood. Whereas situational and emotional control were positively associated (children who experienced situations as controllable tended to also be optimistic about their emotional control and vice versa), they independently contributed to the prediction of children's somatic complaints. Children who perceived lower control, more often experienced somatic complaints than children who perceived higher control and this negative association between control and somatic complaints was also found longitudinally. Whereas perceived situational and emotional control showed an increase with age, the overall level of somatic complaints remained stable. In other words: the prevalence of somatic complaints did not change as children became older. When looking at individual children, however, we found that there were many children of whom the reported frequency of somatic complaints changed over time. As the stability on the overall, group level suggests, some children reported more and other children reported fewer somatic complaints at subsequent times of assessment. These fluctuations were preceded by decreases in situational and emotional control and increases in situational and emotional control

respectively. These findings are in line with the assumption that lower levels of perceived control causes children to experience more stress and subsequent somatic complaints when confronted with negative situations than for children who perceive higher levels of control

Our results that weaker feelings of control are associated with more somatic complaints are in line with previous research findings. It has been shown that children with many somatic complaints rate their emotions in reaction to negative situations as more intense (Rieffe, Meerum Terwogt, & Jellesma, 2007). Feeling a lack of control is one possible explanation for these intense emotional experiences. Moreover, children with many somatic complaints do not seem to lack adaptive ways of dealing with negative emotional experiences, but nevertheless are often bothered by many maladaptive thoughts and experience less effect from their strategies of dealing with emotional experiences (Rieffe et al.). Again, this finding might be explained by the experience of little control. After all, children can try changing situations and thoughts about situations, but if they simultaneously feel insufficient understanding and control in difficult situations, it is unlikely that their efforts will have the same positive results compared to those of children with high emotional self-efficacy and sense of coherence.

A similar result was found by Meerum Terwogt, Rieffe, Miers, Jellesma, & Tolland (2006) who presented children with descriptions of situations in which children clearly experienced stress, including emotional and somatic stress symptoms. When offered a psychological strategy to diminish the emotion, children with many somatic complaints often answered confirmatively as to whether they would use this strategy. Yet, compared to peers, they more often opted for medical solutions for the somatic stress symptoms as well. This might suggest that these children are less confident that their own psychological attempt will be sufficient to resolve the stress, which is in line with the finding that children with many somatic complaints are less optimistic about their coping potential (Rieffe et al). More research is necessary to confirm these speculations. For instance, questions about experienced control in these types of concrete situations could be presented to children.

In our study, we did not find a general increase in the frequency of children's experiences of somatic complaints. Previous studies indicate that an increase in somatic complaints can be expected in somewhat older children (Perquin et al., 2000). This increase may be due to increased levels of stress in adolescence and to biological changes, such as the onset of menstruation in girls (Perquin). In contrast to this average stability in somatic complaints, for many children their sense of coherence became stronger over time and their emotional self-efficacy increased. Obviously, this increase in feelings of control might be explained by the development of cognitive skills that increase children's control (Santrock, 2007). In addition, our sample consisted of primary school children who became the oldest grades of the school. Future studies could reveal what happens with children's feelings of control when they go to middle school.

Based on the results of the current study, we would like to make two additional suggestions for further research. First, we found that the contemporaneous effects of feelings of control were much stronger than the long-term effects. This may signify that control can have a quite direct, short term relationship with somatic complaints (Blossfeld & Rohwer, 1997). Studies with shorter time intervals, such as diary studies could further clarify the time frame in which control affects somatic complaints. Second, the finding that feelings of control and children's levels of somatic complaints show variation within individual children suggests that these variables are not (yet) stable traits (De Fruyt, Bartels, Van Leeuwen, De Clerck, Decuyper, & Mervielde, 2006). This is in line with previous studies showing that aspects of personality generally show plasticity in childhood (Roberts & DelVecchio, 2000; Terracciano, Costa, & McCrae, 2006). This gives room for interventions aimed at decreasing children's somatic complaints by increasing their feelings of control. The influence of such an intervention (e.g. cognitive behavioral therapy; Compton, March, Brent, Albano, Weersing, & Curry, 2004; Prins & Ollendick, 2003) on children's feelings of control and associated somatic complaints could be addressed in future studies.

Our finding that feelings of control are likely to influence children's somatic complaints, becomes especially relevant when considering recent arguments of how children in modern western societies are 'hurried' by adults (Elkind, 2007). Children are thought to often be exposed to expectations that are too grown up for their developmental level. Compared to past prevalence rates, somatic complaints have become more common in childhood (Laurell, Larsson, Eeg-Olofsson, 2004; Santalahti, Aromaa, Sourander, Helenius, & Piha, 2005) and one can wonder whether this perhaps is caused by decreased feelings of control caused by situations referred to by Elkind, such as: children being exposed to many school tests and comparisons with peers. Indeed, many children report that having insufficient time and lagging behind classmates are major sources of stress for them (Brobeck, Marklund, Haraldsson, Berntsson, 2007) and these types of stressors often are associated with somatic complaints (Brobeck et al.; White & Farrell, 2005). In conclusion, the results of this study combined with previous findings, suggest the importance of increasing children's feelings of control in order to reduce the prevalence of somatic complaints at this early life stage.