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

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Chapter 3
Do I feel sadness, fear or both? Comparing self-reported alexithymia and emotional task-performance in children with many or few somatic complaints.

Children with many somatic complaints have been found to report more problems with emotion identification and communication ('alexithymia') than children with few complaints. In this study, it was verified whether children with many somatic complaints indeed show signs of alexithymia. We compared 35 children with many somatic complaints with 34 children reporting no or few complaints in their performance on several tasks that require the skill to identify and communicate emotions (*M*age=10;12, *SD* =14 months). Children with many somatic complaints seemed to have higher self-reports of alexithymia than children with few complaints, but these results were due to difficulty in communicating negative internal states and experiencing indefinable internal states, not to difficulty in identifying emotions. In emotion tasks, they reported higher intensities of fear and sadness. The children did not differ in their attention for emotions and causes of emotions. Children with many somatic complaints more often were able to describe previous emotional experiences and showed better abilities in identifying multiple simultaneous emotions. Children with many somatic complaints thus show a more negative emotion process, but the alexithymia-hypothesis was unsupported.

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INTRODUCTION

The idea that recognizing and expressing feelings is healthy is widespread. There are even many self-help and support groups for adults and children based on the idea that sharing your emotions with others helps in reducing negative feelings. Moreover, being able to recognize own emotions is thought of as a precondition for adequate emotion analysis en subsequent emotion regulation (Rieffe, Meerum Terwogt, Jellesma, 2008). Not being able to verbalize emotions would have negative outcomes, including psychosomatic problems. Sifneos (1972, 1973) first described 'alexithymia' in this respect: problems with identifying and describing emotions. He observed these characteristics in patients with somatization problems. To date, a literature search shows that alexithymia is of interest for many researchers who study the field of somatic complaints. In this study, we aim to further investigate the association between somatic complaints and alexithymic features in children.

The assumption is that adults and children with alexithymia develop health complaints through (unrecognized) emotional arousal and the accompanying physiological reactions (Taylor, 1997). Not being able to recognize and express emotions would intensify and prolong these physiological reactions, causing an increased likelihood of experiencing somatic complaints. Most studies on alexithymia have been conducted in adult populations. A review of these studies indicates that self-reports of alexithymia are indeed positively related to reports of somatic symptoms (De Gucht & Heiser, 2003). More recent studies also confirm this relationship in childhood (Burba, Oswald, Grigaliunien, Neverauskiene, Jankuviene, & Chue, 2006, Jellesma, Rieffe, Meerum Terwogt, & Kneepkens, 2006; Meade, Lumley, & Casey, 2001; Rieffe, Oosterveld & Meerum Terwogt, 2006). These outcomes seem to imply that children with alexithymic characteristics might be more susceptible for developing somatic complaints.

Sifneos (1972, 1973) based his initial ideas about alexithymia on clinical observations, but most empirical studies in this area use self-report questionnaires to measure the construct. A potential problem is that self-reports give information about an individual's subjective perception, but fail to provide information about one's actual abilities. The associations between self-perceived emotional abilities, including alexithymia, and emotional abilities observed through other kinds of tasks are weak in adulthood (Brackett, Rivers, Shifman, Lerner, & Salvoy, 2006; Lumley, Gustavson, Partridge, & Labouvie-Vief, 2005). There is no reason to expect more accurate self-perceptions in childhood. The link between somatic complaints and alexithymia should therefore also be studied by means that differ from self-reported indices of alexithymia.

In a previous study, Rieffe, Meerum Terwogt, and Bosch (2004) presented eight to twelve year old children with sixteen emotion evoking vignettes and asked children how they would feel and how strongly. Rieffe and colleagues not only showed that children with many somatic complaints were as able to identify emotions as children with few or no somatic complaints, but also that children with

many somatic complaints reported more negative emotions. Children with many somatic complaints reported stronger intensities and frequencies for anxiety and a similar trend was present for fear, whereas the children with few complaints reported higher frequencies and intensities for anger. This seems to undermine the alexithymia hypothesis that problems with identifying and describing emotions cause somatic complaints to arise, and suggests indeed that self-reports on alexithymia differ from children's capacities in this respect. However, two alternative explanations might challenge this conclusion.

First, an obvious objection to the use of the vignettes could be that children were prompted to name emotions in the task by Rieffe et al, because they were asked "How would you feel?". Possibly, the question that Rieffe et al asked is a question that children with alexithymic characteristics would not ask spontaneously. It has been suggested that alexithymia causes decreased attention for emotions, but research using an experimental stroop task in adults revealed unclear results (Lundh & Simonsson-Sarnecki, 2002). Concrete attention tasks representing situations similar to those in children's everyday life have not yet been used. The spontaneous attention for emotion experiences could therefore be the crucial problem for children reporting more alexithymic characteristics and somatic complaints.

Second, the empirical evidence that children and adults who score high on self-reported alexithymia, are able to identify their affective state is overwhelming. There are numerous studies that show positive relationships between alexithymia and symptoms of internalizing problems, such as anxiety and depression in adults and children (Berthoz, Consoli, Perez-Diaz, & Jouvent, 1999; Grabe, Spitzer, Freyberger, 2004; Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamaki, 2000; Rieffe et al., 2006). However, feeling "bad" about an argument with a classmate is less reflective than feeling angry because he took your pencil away, scared because you think he might break it, and perhaps feeling sad because the pencil was a birthday present you very much liked and now cannot use. Possibly, not the ability to globally identify how one feels, but the ability to differentiate between different emotion states might be a problem in people reporting alexithymic characteristics, due to a problem in locating the various emotion antecedents. The fact that it has repeatedly been found (Rieffe et al, 2004; 2006; 2008) that children with more somatic complaints score higher than their peers with few somatic complaints on all negative mood states (anger, sadness and fear) could indeed suggest that children with many somatic complaints fail to identify multiple emotions, but do acknowledge a general negative affective state.

The aim of this study was two-fold. First, we aimed to examine both alternative explanations for the findings reported in the previously described study by Rieffe et al (2004). In order to achieve this, a group of children who reported many somatic complaints were compared with children who reported no or few somatic complaints on several emotion indices. We assessed children's ability to spontaneously attend to emotions in possible emotion-evoking situations; their ability to identify their own emotions and related emotion antecedents; and their

ability to identify multiple emotions simultaneously. If problems with i) spontaneous emotion identification, or ii) emotion differentiation and identification of emotion antecedents are related to somatic complaints, children with many somatic complaints are expected to show deficits in at least one of these three tasks. More specifically: they would have less spontaneous attention for emotional situations, identify fewer emotion antecedents and differentiate fewer emotions simultaneously.

Second, we wanted to compare children's ability to identify, differentiate and communicate their emotions with their self-reports about these abilities and therefore also administered the scale "Differentiating Emotions", which consists of items that reflect the ability to differentiate emotions but also to identify emotion antecedents, and the scale "Verbal Sharing", which contains items that reflect the ability to communicate emotions of the Emotion Awareness Questionnaire, a questionnaire based on the well-known TAS-20, adjusted for children (Rieffe et al, 2006). Gender was taken into account, but no hypotheses were formulated in this respect.

METHOD

PARTICIPANTS AND PROCEDURE

In this study, 4 primary schools participated. Parents were given information letters that included an informed consent, to be returned to the child's teacher. The participation rate was 96%. In the classroom, 381 filled out the Somatic Complaint List, on basis of which two groups of children were selected for an individual session of approximately 45 minutes. The 10% children with the lowest scores and the 10% highest scoring children were selected, excluding children who scored exactly on the 10^{th} or 90^{th} percentile. Children with few somatic complaints were 21 boys and 13 girls aged 8;84 to 13;11, M = 11;03 , SD = 1.03. Children with many somatic complaints were 12 boys and 23 girls aged 9;15 to 12;83, M = 10;99, SD = 1.04.

MEASUREMENTS

On all tasks that included a question about intensity of emotions, we used a visual rating scale from 1 to 5.

Self-reported Somatic Complaints: For the self-reports of Somatic Complaints, the Somatic Complaint List was used (Jellesma, Rieffe, Meerum Terwogt, 2007). This list consists of 11 somatic symptoms that are rated by children on a 5 point scale from 1 = *(almost) never* to 5 = *quite often* (each verbally anchored). The previously reported internal consistency is good, as is the internal consistency we found in the current study, $\alpha = .85$.

Spontaneous Attention for Emotions: We used three picture cards: one depicting an angry man looking at a boy with a ball in his hand, standing before a shattered window; one depicting a boy with a sad face watching a group of children walking away from him towards a soccer field with a ball; and one depicting a girl on a

diving board looking scared. The children were given the instruction: "Tell me something about this picture." It was rated whether they referred to an emotion and if so whether they also included the cause of this emotion in their story. The cards were presented in randomized order.

Identification of Own Emotions: In order to see the extent to which children acknowledge their own emotional experiences, children were asked the following questions regarding the four basic emotions (Rieffe, Meerum Terwogt, & Kotronopoulou, 2007):

" ……. [name child], do you feel ….. [emotion] sometimes?" (question 1)
"Can you tell me about the last time you felt ….. [emotion]?" (question 2)
"I would also like to know how ….. [emotion] you felt.
Can you show me on this scale how ….. [emotion] you felt?" (question 3)

A 5-point scale was introduced to children in order for them to respond to question 3:
"Look, if you felt *very very* happy, you take the highest bar in this scale. And if you felt just *a tiny little bit* happy, you point at the lowest bar. You could also feel *quite* happy, and that might be somewhere in the middle. So, just try to think which one fits best how you felt."
The first emotion asked about was happy, the negative emotions (sad, anger, fear) were asked about in a randomized order

Emotion Identification in Mixed Emotion Situations: For the assessment of children's abilities in emotion differentiation (Meerum Terwogt, Koops, Oosterhof, & Olthof, 1986), we used 6 stories about situations with the potential of evoking multiple emotions. The stories were accompanied by a simple picture. They were presented in a randomized order. We added two positive stories, one in the middle and one in the end, in order to make the task more pleasant for the children. After each task, the children were asked whether they would feel happy, angry, sad, and/or afraid (randomized order), and if so, why they would feel this way and with what intensity. An example of a vignette:

Imagine you have a cat and you love her very much. You play a lot with her and she always sleeps in your room. However, the last few days she has been ill, it looks like there is something wrong with her belly. You bring her to the vet. "Yes", says the vet, "I have to operate on the cat, but soon, after the operation, she will no longer have pain".

Self-reported Alexithymia: Two subscales of the Emotion Awareness Questionnaire (Rieffe, Meerum Terwogt, Petrides, Cowan, Miers, & Tolland, 2007) were used to assess children's self-reports of alexithymia. The subscale Differentiating emotions measures experienced emotion identification ability, especially differentiation and consists of 7 items. An example item is: "I am often confused or puzzled about what I am feeling" (reverse coded). The second subscale we used: Verbal sharing of emotions measures experienced ability in the communication of emotions and consists of 6 items. An example item is: "I can

easily explain to a friend how I feel inside". Lower scores on both scales are indicators of self-reported alexithymia. The previously reported internal consistencies of the scales were satisfactory, similar to the results in the current study (α = .68 and .72 respectively).

STATISTICAL ANALYSES

For the simultaneous comparison of the two groups on multiple dependent variables, Hotelling's Trace test was used, followed up by independent t-tests. However, some dependent variables were not normally distributed. In that case we used the more appropriate, non-parametric Mann-Whitney U test. For the comparison of frequencies, we calculated a Chi-square test. We controlled for gender effects, but we did not find any gender interactions. Therefore, it was more efficient to report the results for the total groups of children with few or many somatic complaints.

RESULTS

SPONTANEOUS ATTENTION FOR EMOTIONS

We first compared how often children with many somatic complaints and children with few somatic complaints spontaneously mentioned the emotions depicted in the picture cards and how often they spontaneously referred to a cause for the emotion (0-3 times). A multivariate analyses of variance revealed that the groups did not differ in their spontaneous emotion analysis on this task, Hotelling's Trace = .03, $F(2,66) = 1.04$, partial $\eta^2 = .03$, $p = .36$ (Table 1).

IDENTIFICATION OF OWN EMOTIONS

All children answered confirmatively when asked whether they ever were happy. Only 1 child with few somatic complaints and 2 children with many somatic complaints denied that they were ever angry. However, 9 out of the 34 children with few somatic complaints compared to only 3 out of the 35 children with many somatic complaints said they were never afraid, $\chi^2(1, N=69) = 3.85$, $p = .05$. There were also more children with few somatic complaints ($n = 8$) than children with many somatic complaints ($n = 2$) who denied ever being sad, $\chi^2(1, N=69) = 4.42$, $p = .04$.

We then compared how often children with few or many somatic complaints could report on their last experience of the emotions. Children with many somatic complaints more often described their last emotion evoking situations, $t(67) = -3.09$ $p < .01$, this difference remained significant when correcting for the times when children had denied experiencing a certain emotion, $t(67) = -2.46$, $p = .02$.

Table1

Means on the emotional abilities and emotion intensities for children with few and children with many somatic complaints

	Few Somatic Complaints *M (SD)*	$p < .05$	Many Somatic Complaints *M (SD)*
Self-reported Alexithymia			
Differentiating Emotions	1.51 (0.32)	>	1.00 (0.34)
Verbal Sharing of Emotions	0.99 (0.51)	=	0.77 (0.47)
Spontaneous Emotion References			
Spontaneous referring to Emotion	1.97 (0.76)	=	2.11 (0.80)
Spontaneous referring to Emotion Cause	1.76 (0.85)	=	2.03 (0.92)
Own Emotions			
Descriptions of Emotion Evoking Situations	2.82 (1.03)	<	3.51 (0.82)
Multiple Emotion References			
Positive and Negative Emotions	0.85 (0.82)	=	1.03 (0.82)
Multiple Negative Emotions	3.56 (1.48)	<	4.31 (1.71)
Emotion Intensity: in own experiences			
Happiness Intensity	4.09 (1.19)	=	4.03 (0.95)
Anger Intensity	1.91 (1.50)	=	2.22 (1.63)
Fear Intensity	1.56 (1.69)	<	3.23 (1.72)
Sadness Intensity	1.82 (1.71)	<	3.11 (1.55)
Emotion Intensity: in imagined scenario's (Mixed Emotion Situations)			
Mean Intensity Happiness	0.53 (0.40)	=	0.59 (0.53)
Mean Intensity Anger	1.75 (0.80)	=	1.66 (0.69)
Mean Intensity Fear	0.55 (0.55)	<	1.40 (0.82)
Mean Intensity Sadness	2.03 (0.85)	<	2.48 (1.03)

Some children referred to specific situations (e.g. "I was angry yesterday because my sister had ruined our board game"), whereas others mentioned more general situations (e.g. "I feel scared after watching a scary movie"). We have to take into account that general answers can be quite prototypical, not necessarily referring to actual remembered experiences. Therefore, we controlled whether perhaps children with few somatic complaints more often referred to specific, concrete situations than children with many somatic complaints. This was not the case, $t(67) = -1.10$, $p = .28$. Children with many somatic complaints ($M = 0.87$, $SD = 0.17$) and children with few somatic complaints ($M = 0.82$, $SD = 0.22$) equally often recalled specific situations.

A multivariate analyses of variance comparing the groups (few versus many somatic complaints) on the rated intensity of happiness, anger, fear, and sadness revealed a significant group difference, Hotelling's Trace = .35, $F(4,64) = 5.64$, partial $\eta^2 = .26$, $p < .01$. Compared to children with few somatic complaints, children with many somatic complaints reported higher intensities for fear and sadness, $t(67) = -4.07$ and $t(67) = -3.28$ respectively, $p < .01$ (Table 1).

EMOTION IDENTIFICATION IN MIXED EMOTION SITUATIONS

We calculated the number of times children identified happiness and at least one negative emotion and the number of times children identified more than one negative emotion. The means and standard deviations are presented in Table 1. Since the two variables violated the assumption of a normal distribution, Mann-Whitney U tests were used for a comparison of the groups. The children only differed in the number of times multiple negative emotions were reported, U = 405.50, p = .02, r = -.28. Children with many somatic complaints more often reported multiple negative emotions (*Mdn* = 5) than children with few somatic complaints (*Mdn* = 4). Some children reported multiple emotions, but gave the same reasons for the different emotions. For instance, children responded that they would be sad and angry when punished for something they did not do. On the hand, it is possible that children indeed feel both emotions for the 'same' reason (whereas sadness is linked to the punishment as such, anger is linked to the fact that is was not justified); on the other hand, giving the same reason for different emotions can also reflect poor emotion differentiation. Therefore, we conducted an additional analysis, comparing the number of times children reported multiple emotions that each had a different explanation. This revealed similar results, U = 413.50, p = .03, r = -.27, *Mnd* = 4 for children with many somatic complaints, *Mdn* = 2 for children with few somatic complaints.

Finally, we compared the groups on their mean emotion intensity over stories, for happiness, anger, sadness and fear separately. The mean scores and standard deviations are presented in Table 1. Because the assumption of normality was violated, we used Mann-Whitney U tests for the group comparisons. Children with many somatic complaints reported higher intensities of fear (*Mdn* = 1.33) and sadness (*Mdn* = 2.67) compared to children with few somatic complaints (*Mdn* = 0.50 and *Mdn* = 2.17), U =210.50, $p < .01$, r = -.20, and U = 418, p = .03, r = -.26 respectively. No other significant differences were found.

SELF-REPORTS OF ALEXITHYMIA

We finally analyzed whether the previous findings with regard to the self-reports of children's alexithymia could be confirmed in the current study. A multivariate analysis of variance was used, with group (few versus many somatic complaints) as independent variable and emotion differentiation and verbal sharing of emotions as dependent variables. Indeed, we found differences between the groups, Hotelling's Trace = 0.62, F(2,66) = 20.39, partial η^2 = .38, $p < .01$. As could be expected, children with many somatic complaints experienced more difficulty with differentiating emotions than their healthy peers, $t(67) = 6.42$, $p < .01$ (Table 1). Children with many somatic complaints also seemed to have more difficulty with the verbal sharing of emotions. However, probably due to a smaller sample size in comparison to our previous study, this difference was only significant at a significance level of .10, $t(67) = 1.84$, p = .07.

As children's self-reports of alexithymia and the emotional capacities they showed on each of the tasks seemed to contradict each other, we decided to analyze children's self-reports more thoroughly. Discriminant function analyses were used in order to determine which of the scale items contributed to the discrimination of children with many somatic complaints and children with few somatic complaints. A stepwise procedure was applied. When more than one item is found to discriminate between the groups, a latent variable is created as a linear combination of the discriminating items. This latent variable is more accurate in predicting group membership than each of the items alone. An item was entered in the linear combination at a significance level of .05 and deleted at a level of .10.

For the items of the differentiating emotions scale, a significant function was found, Wilks' $\lambda = .40$, χ^2 (2, $N = 69$) = 60.44, $p < .01$. A combination of two items was used for creating the latent variable. The association between the latent variable and all items of the scale are presented in Table 2. These results indicate that children with many somatic complaints experienced difficulty in understanding or placing their feelings, but this concerned *general internal states*. Items that assessed confusion about *specific emotions* did not contribute to discrimination of children with many or few somatic complaints. We labeled this latent variable 'experience of undefined internal states'. With the created latent variable, classification of both groups was quite accurate: 88.2% for the children with few somatic complaints and 88.6% for the children with many somatic complaints.

Table 2
Correlations Between Items and the Latent Variables Created with Discriminant Function Analyses

Item	Pooled Within Group Correlation
Experience of undefined internal states	
I am often confused or puzzled about what I am feeling (R)	.93*
Sometimes I feel upset and have no idea why (R)	.53*
I never know exactly what kind of feeling I am having (R)	.26
When I am upset, I don't know if I am sad, scared or angry (R)	.18
It is difficult to know whether I feel sad, angry or something else (R)	.15
Difficulty in talking about internal states	
I find it hard to talk to anyone about how I feel (R)	1.00*
I find it difficult to explain to a friend how I feel (R)	.60
When I am upset about something, I often keep it to myself (R)	.25
I can easily explain to a friend how I feel inside	.17
I always like to tell my friends how I am feeling	.13
When I feel upset, I like to talk about it with a friend	.08

(R) = reverse coded *Variable used as latent trait predictor

For the items of the verbal sharing or emotions scale, we found a significant function as well, Wilks' $\lambda = .84$, χ^2 (1, $N = 69$) = 11.30, $p < .01$, consisting of only 1 item. Table 2 shows how this latent variable (which in this case was identical to the item) is related to the other items. Based on these results, we can conclude that group difference found on this scale can be attributed to experienced difficulty in talking about internal states by children with many somatic complaints; there is no clear motivational problem. Specific feelings or emotions were not referred to in this item. Therefore, 'difficulty in talking about internal states' seems a suitable way of describing the variable.

Of the children with few somatic complaints 82.4% could be correctly classified based on this item. Almost all children with few somatic complaints found it easy to talk about internal feelings. Yet, only 54.3% of the children with many somatic complaints was correctly classified. This indicates that those children who experienced difficulty with talking about internal states, reported many somatic complaints. Yet, there were also many children who reported many somatic complaints, but did not experience difficulty in talking about their internal states with others.

DISCUSSION

Subject of this study was the assumption that alexithymia -an inability to recognize or verbalize one's emotions- is related to more somatic complaints, which was tested by comparing a group of children with many versus a group with few somatic complaints on different emotion indices. The frequently noted alexithymic characteristics based on self-reports (Burba et al., 2006; Jellesma et al., 2006; Meade et al., 2001; Rieffe et al., 2006) seemed to be replicated in this study. However, children's answers on the different emotion tasks and a more in depth analysis of children's self-reports gave more subtle insights into the exact problems and difficulties of children with many somatic complaints with respect to their emotional functioning.

When we examined children's capacities to refer to emotions spontaneously, differentiate between various emotions and identify their own emotions in relation to emotion-eliciting events, it appeared that, compared to children with few somatic complaints, children who had reported many somatic complaints identified more simultaneous emotions within the negative domain and more often acknowledged feeling sad and scared. Children with many somatic complaints also noted higher intensities for sadness and fear with respect to their own experiences, as well as those of protagonists. No other differences between the two groups appeared with respect to their capacities. These results indicate that children with many somatic complaints have no *deficiencies* in their ability to identify emotions and verbally share them, but their emotional responses are *different* compared to those of children with few somatic complaints. Moreover, further analyses of children's self-reports showed that children with many somatic complaints more often experience undefined internal states than children with few complaints. Thus,

identifying specific emotions or differentiating between them does not seem to be a problem. Rather, children with many somatic complaints report they experience general negative internal feelings they are unable to further define or place into context. Finally, within the group of children with many somatic complaints, there were more children who experienced difficulty in talking about internal states compared to the group of children with complaints. Perhaps, the experience of ill-defined internal states contributes to perceived difficulties in talking about these feelings.

Two questions arise from these findings. First, in the introduction we stated that children's emotional processing is related to somatic complaints via psycho-physiological arousal. If not the originally described alexithymic characteristics lead to difficulties with reducing emotional states and belonging physiological changes, what can be alternative explanations? In order to answer this question, we have to consider the process through which emotions are experienced and regulated. The first two steps involve having attention for emotional aspects and emotion appraisal (Gross & Thompson, 2007). Attention and appraisal in the sense of emotion identification ability were not associated with somatic complaints. Yet, the appraisal of children with many somatic complaints was different from their peers. They more frequently reported sadness and fear and also had higher intensity ratings for these two emotions. This was in line with the previous study of Rieffe et al (2004). Higher emotion intensities indicate stronger physiological reactions. Moreover, sadness and fear are emotions typically associated with feelings of lower control. Sadness and fear are evoked by situations that are perceived as difficult to change (Kalat & Shiota, 2007). Children with many somatic complaints indeed more often confirm that they perceive situations in life as less controllable (Jellesma et al, 2006). The third step of emotion processing, applying emotion regulation strategies, could therefore expected to be less effective in children with many somatic complaints. After all, if you feel you are in a situation you cannot control, you are less likely to successfully cope. Indeed, children who experience chronic somatic complaints, are less confident of their ability to change or adapt to stress (Rieffe, Meerum Terwogt, Jellesma, 2008; Walker, Smith, Garber, & Claar, 2007). Future studies can clarify whether the actual use of coping strategies in children with many somatic complaints is indeed different of that of other children. And even if that proves to be the case it has to be found out whether these differences remain when the children are prompted to use certain strategies. After all, if this is not the case, it might be concluded that children with many somatic complaints, guided by their own negative perceptions, are inclined to avoid using coping mechanisms.

The second question is what causes children with many somatic complaints to experience undefined negative internal states. Since the results of this study show that this experience is very unlikely to be the result of confusion about emotions, these self-reports are most likely associated with negative moods. Whereas emotions are temporary experiences that arise in response to specific events (Kalat & Shiota, 2007; Beedie, Terry, & Lane, 2005), moods are more general. Moods are

affective states without a specific cause. Moods can be thought of as residual affective states that are influenced by a conglomerate of experiences and emotions over time. The source of negative moods is therefore hard to define and it is not always possible for people to understand why they are in a negative mood (Beedie et al). As can be expected based on the just suggested poor emotion regulation of children with many somatic complaints, there is a strong association between negative moods and somatic complaints in childhood (Campo, et al., 2004; Diepenmaat, van der Wal, de Vet, & Hirasing, 2006; Jellesma, Rieffe, Meerum Terwogt, Bosch, Kneepkens, & Kindermann, 2006; Muris & Meesters, 2004). The reports of children with many somatic complaints that they often experience indefinable negative internal states thus probably are a reflection of more frequent negative mood experiences in these children compared to their peers. In future research, this explanation should be further investigated. As group classification (many versus few somatic complaints) based on the experience of undefined negative internal states was exceptionally accurate, understanding the exact meaning of these self-reports is highly relevant.

In conclusion, the results of this study fail to support the alexithymia hypothesis in children. Whereas children with many somatic complaints have sufficient emotion identification capacities, they show signs of an emotion processing and emotion regulation tendency that increases the likelihood of intense and long-term negative affect. Therefore, not alexithymia, but (felt) competence in dealing with negative situations and regulating own emotions are likely to increase children's vulnerability to somatic complaints.