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Anger regulation and school-related somatic complaints in children with special educational needs: A longitudinal study☆

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ABSTRACT

Somatic complaints are a widespread problem among children, and are considered as an important precursor to internalizing problems. Particularly, children with special educational needs are at risk of suffering from school-related somatic complaints. However, there is a lack of research on the role of anger regulation for the development of somatic complaints. Moreover, studies on underlying mechanisms are scarce. We assumed that the effect of anger regulation on somatic complaints is mediated by school-related affect, and that the effect of anger regulation on school-related affect is moderated by intelligence. A representative German sample of 467 elementary school children with special educational needs participated in the study. We collected longitudinal data at two measurement occasions (Grade 3 and Grade 4). Children were asked about their use of adaptive anger regulation strategies, their school-related affect, and their somatic complaints in school, and they completed an intelligence test at the first measurement point. Somatic complaints again were assessed one year later. As expected, adaptive anger regulation strategies were not related directly to somatic complaints, but were positively related to school-related affect, which, in turn, predicted decreased somatic complaints over and above initial levels. Also, as expected, children higher in intelligence benefitted more from using adaptive anger regulation strategies in terms of school-related affect. Our findings support the assumption that adaptive anger regulation strategies and intelligence may be important protective factors and potential starting points in the prevention of somatic complaints in children with special educational needs.

1. Introduction

Although theoretical models of somatoform disorders have incorporated emotion regulation as an important component (e.g., Deary, Chalder, & Sharpe, 2007) and, likewise, although anger has been identified as an important component of pain (Fernandez & Turk, 1995), only a few studies have addressed the role of *anger* regulation on the development of somatic complaints. This paucity of literature applies particularly in the case of children, and even more so regarding children with special educational needs. The few exceptions have revealed inconsistent findings from normative samples, such as significant direct or indirect relations (Massey, Garnefski, & Gebhardt, 2009; Miers, Rieffe, Meerum Terwogt, Cowan, & Linden, 2007) and non-significant relations (Giacobo, Jane, Bonillo, Ballespí, & Díaz-Reganon, 2012; A. Yarcheski, Mahon, & Yarcheski, 2002) between anger regulation and somatic complaints. In the present study, we aim to shed light on the role of anger regulation for somatic complaints by examining potential underlying mechanisms in a longitudinal study with a sample of children with special educational needs. Specifically, we focus on the subgroup of special educational needs students in the area of learning (i.e., with mild learning difficulties; Hornby, 2014)—a group that may be particularly affected by school-related somatic complaints, because they experience increased school-related stressors, such as repeated academic failures or stigmatization (Geisthardt & Munsch, 1996). We suggest that direct effects of anger regulation strategies on somatic complaints are not likely to occur because the inherent aim of anger regulation is to optimize affect, not physical well-being. We therefore assume that children who use adaptive anger regulation strategies primarily experience more positive and less negative affect in school (hereafter referred to as school-related affect), which, in turn, should lead to decreased school-related somatic complaints. Moreover, as a second issue, we examine intelligence as a

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potential moderator of the effects of anger regulation strategies on school-related affect. We propose that intelligence enhances the overall impact of adaptive anger regulation on subsequent affect.

1.1. Somatic complaints in children with special educational needs

Somatic complaints are characterized by the presence of physical symptoms that are not explained by any medical condition (Huasain, Browne, & Chalder, 2007; World Health Organization, 1992), and can be defined as an expression of a psychological difficulty (e.g., experience of distress when the teacher announces a test on a difficult topic) through one or more physical complaints (Lipowsky, 1988).[1] Physical complaints, such as fatigue, abdominal pain, or headaches, frequently are reported throughout childhood (Garber, Walker, & Zeman, 1991). Children with those complaints miss school more often than do children without somatic complaints, and make frequent visits to pediatricians (Domènech-Llaberia et al., 2004; Saps et al., 2009). However, in most cases, clear organic causes of these symptoms cannot be identified (Compas & Harding Thomsen, 1999; Roth-Isigkeit, Thyen, Raspe, Stoven, & Schmucker, 2004). Additionally, findings from different studies suggest strong associations between somatic symptoms and psychiatric disorders in both patients with and without clear organic cause or even higher psychiatric morbidity in patients for which no organic cause could be found (cf. Kisely, Goldberg, & Simon, 1997), indicating further need for aetiological research in both groups. Therefore, researchers have shifted their focus onto psychological reasons of somatic complaints (Jellesma, Rieffe, Meerum Terwogt, & Kneepkens, 2006).

Meanwhile, many researchers consider childhood somatic complaints as an important precursor of psychological disorders later in life. In a prospective cohort study by Pihlakoski et al. (2006), somatic complaints of 3-year-old girls predicted both externalizing and internalizing problems at age 12. In another study, Shanahan et al. (2015) found that childhood somatic complaints in a community sample predicted generalized anxiety and depressive disorders ten years later. Therefore, it is of crucial practical importance to learn more about somatic complaints and potential antecedents as this knowledge may be useful for preventing children from later internalizing and externalizing problems. Unfortunately, children's somatic complaints have been investigated less intensively than have other mental health problems (Beck, 2008; Eminson, 2007). Schulte and Petermann (2011) noticed that somatoform disorders in childhood are one of the least explored areas in childhood and adolescent psychology.

Albeit the aforementioned problems should be evident in normative samples of school-aged children, we assume that they would become even more apparent in children with special educational needs. Learning difficulties, for example, pose a specific risk factor for the mental health of children, and have consistently been found to be related to somatic complaints (Greenham, 1999; Maag & Reid, 2006; Mugnaini, Lassi, La Malfa, & Albertini, 2009) as well as internalizing problems (e.g., anxiety and depression; Klassen, Tze, & Hannok, 2013; Nelson & Harwood, 2011). This finding is not surprising in light of theoretical approaches to the explanation of internalizing problems. According to developmental health theories, internalizing problems can be explained by the interplay of biological predispositions (e.g., negative affectivity, Zahn-Waxler, Klimes-Dougan, & Slattery, 2000) and environmental factors (e.g., academic stressors associated with schooling, Waters, Cross, & Shaw, 2010). With respect to the latter, repeated academic failures by children with low cognitive capacities are likely to impair school-related affect (e.g., evoke feelings of inferiority and helplessness), which, in turn, increases the risk of further academic failures. It is likely that children with special educational needs fall into such a vicious cycle of failure and maladjustment, not solely because they have a greater risk of academic failures, but also because they seem to have lower emotional competencies (e.g., emotion regulation), on average, compared to children without special educational needs (Mavroveli & Sánchez-Ruiz, 2011).

1.2. Anger regulation strategies

The role of anger regulation for children's healthy development (e.g., academic learning and achievement, social competence, externalizing and internalizing problems) has received increased attention in the past two decades (Eisenberg, Spinrad, & Eggum, 2010; Lemerise & Arsenio, 2000; Pekrun, Frenzel, Goetz, & Perry, 2007; Southam-Gerow & Kendall, 2002). Based on a widely accepted definition suggested by Thompson (1994), we define emotion regulation as internal and external processes involved in initiating, maintaining, and modulating the occurrence, intensity, and expression of emotions—especially their intensive and temporal features—in order to accomplish one's goals. In this regard, children have been found to use several habitual anger regulation strategies (e.g., reappraisal, rumination), which can be classified as adaptive vs. maladaptive forms of anger regulation, depending on their effect on a person's long-term psychosocial functioning (Aldao, Nolen-Hoeksema, & Schweizer, 2010). In the present study, we focus on four adaptive anger regulation strategies (*reappraisal*, *acceptance*, *distraction*, and *mood-raising*) that usually have been studied in emotion regulation research. In a recent meta-analysis, particularly reappraisal and acceptance turned out to be two important adaptive anger regulation strategies with respect to adolescents' anxiety and depressive symptoms (Schäfer, Naumann, Holmes, Tuschen-Caffier, & Samson, 2016). Reappraisal comprises generating positive interpretations of an anger-eliciting situation, whereas acceptance includes understanding anger and anger-related thoughts as they are, without any effort to judge or to change them (Aldao et al., 2010). These strategies aim to reduce distress in daily life by changing unpleasant cognitive (in case of reappraisal) or emotional (in case of acceptance) components of negative emotions. As an example for reappraisal, a child whose dog had to be euthanized may say to himself that his dog does not have to suffer any longer. An example for acceptance would be that the child realizes that his dog has died and acknowledges that it is certainly human to be sad about it. Distraction, in contrast, is a change of perception that is defined by paying less attention to the anger-eliciting situation and focusing one's attention on an alternate activity instead (e.g., the child goes out and plays with his friends to distract from his dead dog). Mood-raising is another strategy similar to distraction, characterized by turning to alternative activities which are known to be associated with positive emotions for the respective person (e.g., the child decides to listen to his favorite music).

1.3. Effects of anger regulation strategies on somatic complaints

For a long time, researchers have postulated a link between emotion and body, and have claimed that body sensations can be influenced by emotions and vice versa. Empirically, particularly internalizing emotions have been frequently investigated as emotional components of pain. In other studies, the idea was conceived that externalizing emotions (e.g., anger) also may play a significant role in the context of pain (Fernandez & Turk, 1995). Physical pain facilitates aggressive response tendencies (rudimentary anger) that occur immediately after the aversive event (Berkowitz, 1993). Moreover, reviews have shown increasing evidence that the experience of anger is positively related to persistent pain (Greenwood, Thurston, Rumble, Waters, & Keefe, 2003). For example, studies have shown that adults with chronic illnesses

[1] It should be noted that the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) made significant changes to the criteria of somatic symptom and related disorders (formerly known as somatoform disorders) in order to remove the mind-body separation of somatic symptoms. While medically unexplained symptoms were a key feature for many of the disorders in DSM-IV, a somatic symptom diagnosis does not require that the somatic symptoms are medically unexplained. Symptoms may or may not be associated with another medical condition.