

Emotion awareness and somatic complaints in preadolescence: The mediating role of coping
strategies

Angela Mazzone*

University "G. d'Annunzio", Chieti-Pescara, Italy

Marina Camodeca

University of Milano Bicocca, Milan, Italy

*email address for correspondence: mazzoneangela@gmail.com

*This is an Accepted Manuscript of an article published by Wiley Online Library, available online at
<http://onlinelibrary.wiley.com/doi/10.1002/icd.2075/abstract>*

To cite this article: Mazzone, A., & Camodeca, M., (in press). Emotion awareness and somatic complaints in preadolescence: The mediating role of coping strategies. *Infant and Child Development*. doi: 10.1002/icd.2075

Abstract

Somatic complaints are frequent among preadolescents with impaired emotion awareness and maladaptive coping strategies. In addition, coping strategies in response to stressful events have been suggested to affect the association between emotion awareness and somatic complaints. However, empirical support for this assumption is missing. In this study, we examined the extent to which emotion awareness and coping contributed uniquely to somatic complaints and the indirect effect of emotion awareness on somatic complaints through coping strategies, among preadolescent boys and girls. Self-reports were administered to 265 preadolescents (137 boys; $M_{\text{age}} = 12.04$) to investigate somatic complaints, emotion awareness, and coping strategies to deal with peer victimization. A subsample ($N = 97$) was assessed after a 12-month time-span. Cross-sectional results indicated that more somatic complaints were associated with less emotion awareness and problem solving, and with more internalizing and externalizing coping. Poor emotion awareness was indirectly associated with somatic complaints through internalizing for boys and through distraction, externalizing, and internalizing for girls. Emotion awareness was longitudinally associated with somatic complaints through distraction for boys. Overall, findings suggested that less emotion awareness was associated with more maladaptive coping strategies, which in turn contributed to more somatic complaints. Implications for research and intervention are discussed.

Keywords: coping strategies, emotion awareness, somatic complaints, gender differences, preadolescence, moderated mediation

Emotion awareness and somatic complaints in preadolescence: The mediating role of coping strategies

Somatic complaints are described as physical symptoms not sufficiently explained by medical conditions. Many children and adolescents experience, on a day-to-day basis, symptoms such as headache, abdominal pain, or dizziness (Jellesma, Rieffe, & Meerum Terwogt, 2008). However, to date, the aetiology of psychosomatic complaints is not well understood. Several psychological aspects (e.g., emotional functioning; coping strategies) and contextual variables (e.g., negative life events, such as parental divorce or peer harassment) have been called into question to explain this symptomatology (Vanaelst et al., 2012).

According to some theoretical interpretations, somatic complaints result from a tendency to misattribute physiological reactions related to an emotion-evoking event (e.g., sweating; increasing heartbeat) to a medical cause (Pennebaker, 1984). This incorrect interpretation of physiological signs, together with a focus on one's own bodily symptoms, prevents the individual from paying attention to the outside emotion-evoking situation and, consequently, from dealing adequately with it and finding a suitable solution (Rieffe, Oosterveld, Miers, Meerum-Terwogt, & Ly, 2008; Rieffe & De Rooij, 2012). Impaired emotion awareness, involving difficulties in differentiating or communicating emotions and correctly attributing their physiological correlates, is associated with somatic complaints in children (Camodeca & Rieffe, 2013; Ordóñez, Maganto, & González, 2015; Rieffe, Meerum Terwogt, & Bosch, 2004; Rieffe, Meerum Terwogt, Bosch et al., 2007), whereas good emotion awareness is associated with fewer somatic complaints and positive social outcomes (e.g., friendship; positive mood) (Jellesma et al., 2008; Jellesma, Rieffe, Meerum Terwogt, & Kneepkens, 2006; Rieffe, et al., 2008).

Another risk factor for somatic complaints seems to be the use of ineffective coping strategies (Miers, Rieffe, Meerum Terwogt, Cowan, & Linden, 2007). The process of coping refers

to the ability of regulating one's own emotions, behaviours, and motivations to manage external or internal demands (e.g., environmental events or conflicting goals), exceeding the individual resources (Dubow & Rubinlicht, 2011). In the present study, we were interested in coping strategies adopted by preadolescents when dealing with peer victimization, which represents a common and salient interpersonal stressor during preadolescence. A failure in dealing with peer victimization is often associated with dysfunctional outcomes (Hamilton et al., 2016; Hansen, Steenberg, Palic, & Elklit, 2012; McLaughlin, Hatzenbuehler, & Hilt, 2009). In particular, according to the literature, maladaptive strategies (e.g., acting out anger, aggression, worry, rumination, and helplessness) in response to victimization may even trigger further victimization by peers, leading to emotional difficulties and somatic complaints (Kristensen & Smith, 2003; Mahady-Wilton, Craig, & Pepler, 2000; Miers et al., 2007; Salmivalli, Karhunen, & Lagersperz, 1996). The association between maladaptive coping and somatic complaints may be due to a difficulty in managing one's own emotions and to the perception of interpersonal stressful events as unpredictable and uncontrollable (Jellesma et al., 2006; Rieffe & De Rooij, 2012).

Previous literature suggested that avoidant strategies (e.g., distraction, ignoring, trivializing, or minimizing the problem) are associated with maladjustment and somatic complaints (Frydenberg & Lewis, 2009; Lahaye, Fantini-Hauwel, Van Broeck, Bodart, & Luminet, 2011). It is likely that these strategies lead the individual to escape from the problem, rather than finding a proper solution. However, other studies found that shifting the focus from the problem might be an effective strategy to avoid the negative consequences of the stressful situation (Hampel & Petermann, 2005; Salmivalli et al., 1996). Finally, other studies have reported no associations between distraction or trivializing and maladjustment or somatic complaints (Miers et al., 2007; Pouw, Rieffe, Stockmann, & Gadow, 2013).

In contrast, approach coping strategies (e.g., problem solving and seeking social support) are

generally associated with healthy adjustment, good social outcomes, and a low incidence of somatic complaints (Gini, Carli, & Pozzoli, 2009; Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004). The success of approach coping strategies may result from the fact that they are directed towards managing or changing the situation and achieving personal control over both the stressful event and one's own emotions (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001). It is likely that emotion awareness and coping strategies are intertwined in predicting somatic complaints. In particular, while the association between emotion awareness and somatic complaints is well documented in the literature, the mechanisms explaining this association have not been examined. Indeed, beyond the direct paths linking emotion awareness and coping strategies with somatic symptoms, mediational pathways have also been suggested (Rieffe, Meerum-Terwogt, Petrides et al., 2007). As pointed out by Rieffe and colleagues (Jellesma et al., 2006; Rieffe et al., 2004; Rieffe & De Rooij, 2012; Rieffe, Meerum-Terwogt, Petrides et al., 2007), good emotion awareness could allow a more adequate approach to the problem, whereas a poor emotion awareness may prevent children from using adaptive coping strategies. Given that coping strategies are associated with somatic complaints, we suggest that coping is a good candidate to explain the link between emotion awareness and somatic complaints.

Although a previous study (Lahaye et al., 2011) found that coping strategies, such as ignoring and worrying, mediated the association between emotion awareness and quality of life, in a clinical sample of children with asthma, to the best of our knowledge, only one study has specifically considered coping as a mediator between emotion awareness and somatic complaints in a non-clinical sample of children and adolescents (van der Veek, Derkx, de Haan, Benninga, & Boer, 2012). In particular, this study compared three groups of children and adolescents, presenting either frequent abdominal pain, some abdominal pain, or no abdominal pain. Results revealed that children with frequent abdominal pain scored significantly lower on emotion awareness and used

more avoidant coping compared to children without abdominal pain. However, contrary to authors' expectations, problem-solving, rather than avoidant coping, was found to mediate the association between high emotions awareness and abdominal pain. Moreover, this study yielded only weak effects, which point to the need to clarify the role of coping strategies in the association between emotions awareness and somatic complaints.

Therefore, the current research was designed to extend previous literature and to better address the role of coping strategies in the association between emotion awareness and somatic complaints in a non-clinical sample of preadolescents.

The Role of Gender

Gender differences have been found in the way girls and boys experience somatic complaints, reflect on their own emotions, and cope with stressful events. Somatic complaints have been consistently reported more often by girls, than by boys (Leadbeater, Kuperminc, Hertzog, & Blatt, 1999; van der Veek et al., 2012). With respect to emotion awareness, literature shows contrasting findings, with some studies suggesting that girls have better emotion awareness skills than boys (Ordóñez et al., 2015; Veirman, Brouwers, & Fontaine, 2011), while others have identified no gender differences (Rieffe, et al., 2008).

Gender differences have also emerged regarding coping strategies used by girls and boys in response to peer victimization. In particular, girls seem to use more problem solving, social support, and internalizing coping (Kristensen & Smith, 2003; Salmivalli et al., 1996; Spence, De Young, Toon, & Bond, 2009), while boys are prone to use more trivializing, externalizing, and aggressive coping strategies (Cowie, 2000; Kristensen & Smith, 2003; Naylor, Cowie, & del Rey, 2001). However, it seems that maladaptive coping strategies (e.g., aggression, rumination) in response to interpersonal stressors are related to emotional problems both in boys and in girls (Hampel & Petermann, 2005).

In sum, based on previous literature, it seems important to consider gender when investigating the variables object of the present study. Therefore, on an explorative basis, we aim at testing whether gender affected the strength of the associations between the variables investigated in this study.

The Present Study

The present study was designed to investigate the associations between emotion awareness, coping strategies, and somatic complaints. Further, we investigated whether coping mediated the relationship between emotion awareness and somatic complaints and the role of gender as a moderator in the associations between our variables.

First, good emotion awareness was hypothesized to be negatively associated with somatic complaints, as competencies in handling one's own emotions could help in solving the stressful situations and in reducing the likelihood of manifesting internalizing symptoms (Camodeca & Rieffe, 2013; Lahaye, Luminet, Van Broeck, Bodart, & Mikolajczak, 2010; Rieffe et al., 2008; Rieffe & De Rooij, 2012).

Second, it was hypothesized that approach coping strategies would be negatively associated with somatic complaints, whereas maladaptive coping strategies would be positively associated with somatic complaints (Miers et al., 2007). The reasons for these hypotheses lay in the fact that children who use problem-solving in response to peer victimization would make active efforts to think about effective solutions for dealing with the situation or with the consequent negative emotions. In contrast, getting angry and worried about the problem may prevent children from finding an adequate solution to the stressful event (Miers et al., 2007). Given the contrasting findings in the literature, we did not formulate any hypothesis in respect to the association between trivializing and distraction coping strategies and somatic complaints.

Third, we expected that poor emotion awareness would be associated with somatic

complaints through coping strategies. Therefore, we hypothesized that preadolescents with a poor emotion awareness would employ maladaptive coping strategies in response to hypothetical peer victimization, which, in turn, would contribute to increased somatic complaints (Garnefski, Rieffe, Jellesma, Meerum Terwogt, & Kraaij, 2007; Miers et al., 2007).

Fourth, we tested these associations also longitudinally, and we expected to find support for our cross-sectional findings.

Fifth, we investigated the moderating role of gender in all direct and indirect associations. Although gender seems to be associated with the variables addressed in the present study, there is poor empirical evidence regarding its role in the intertwinement between emotion awareness, coping, and somatic complaints. Therefore, we did not advance any specific hypothesis about the role of gender in moderating the associations between our variables.

Method

Sample and Procedure

Data were collected in three public schools in central and southern Italy across one year of time. At the first time point (T1), the sample consisted of 265 preadolescents (137 boys and 128 girls, mean age = 12.04 years, $SD = 0.86$, age range 11-14 years), who attended the sixth, seventh, and eighth grades (corresponding to the three grades of middle school in the Italian school system) in one school ($N = 150$) and the sixth and seventh grades in other two schools ($N = 115$). After a 12-month period (T2), these latter two schools were asked to participate again. A subsample of 97 preadolescents (84.3%; 50 boys and 47 girls, mean age = 12.93 years, $SD = .74$, age range 12-15 years), attending the seventh and eighth grades, joined the research at T2. The few preadolescents ($N = 18$) who did not take part in the research at T2 either did not receive written parental consent (at T2) or were absent on the administration day. Although socio-economic status was not directly measured, the sample included students from a wide range of social backgrounds (from low and

working class, to upper class).

The aims and methodology of the study were presented to school principals and teachers, who gave their consent for the research project. In one school ($N = 150$) parents were informed by the school principal about the study and none of them refused the participation of their children. In the other schools ($N = 115$), written parental consent was obtained prior to the first data collection and 95% of the contacted families allowed their children to participate. Pupils were informed about the research project and had the possibility to withdraw at any time; however, all of them agreed to take part in the study and completed the questionnaires. The study was conducted according to the Ethical Principles of Psychologists and Code of Conduct (APA) and to the Ethical Code of the Italian Association of Psychology.

All data presented in this research were collected in classrooms during school schedules. After the researcher gave instructions, participants completed the questionnaires, whose order was counterbalanced. The administration took approximately one hour. Students were asked to carefully read each single question and answer on the basis of their personal experience and thoughts. They were assured about the confidentiality of all the information provided.

Given that, for the purpose of this study, we were interested in investigating whether emotion awareness and coping strategies at T1 were cross-sectionally and longitudinally associated with somatic complaints, we assessed somatic complaints both at T1 and at T2.

Measures

Somatic Complaint List (SCL). The instrument aims at assessing somatic complaints in children and adolescents. It was developed by Jellesma, Rieffe, and Meerum Terwogt (2007) and it has been already employed with an Italian sample (Camodeca & Rieffe, 2013). The SCL consists of 11 items. Participants are asked to rate on a 3-point Likert scale (1 = *never*; 2 = *sometimes*; 3 = *often*) the frequency with which they experience somatic complaints, such as stomachache,

headache, tiredness, pain, weakness. High scores indicate a high presence of somatic complaints, except for two items (i.e., items 3 and 10), whose scores are reversed as they concern good health. In the present sample, test-retest correlations were $r = .44, p < .001$, for boys, and $r = .50, p < .001$ for girls. Descriptive statistics and internal reliabilities are displayed in Table 1.

[Table 1]

Emotion Awareness Questionnaire (EAQ). The EAQ was developed to assess emotion awareness in children and adolescents (Rieffe et al., 2008; Rieffe, Meerum Terwogt, Petrides, et al., 2007). We employed the Italian version, adapted by Camodeca and Rieffe (2013). The EAQ consists of 30 items (20 of which are reverse scored), with a 3-point Likert scale answer modality (1 = *not true*; 2 = *sometimes true*; 3 = *often true*). High scores indicate high emotion awareness. Although the EAQ yields six scales, for the purpose of the present work, a composite score was computed by averaging the scores of the four scales, which have been found to be related to somatic complaints (Camodeca & Rieffe, 2013; Lahaye et al., 2010; Rieffe et al., 2008): *Differentiating Emotions* (7 items, e.g., “It is difficult to know whether I feel sad or angry or something else”, reversed), *Verbal Sharing of Emotions* (3 items, e.g., “I can easily explain to a friend how I feel inside”), *Not Hiding Emotions* (5 items, e.g., “Other people don’t need to know how I am feeling”, reverse), and *Bodily Awareness* (5 items, e.g., “When I am scared or nervous, I feel something in my tummy”, reverse). The decision of using one combined dimension instead of the EAQ single scales is due to several reasons. First, we found very similar and overlapping results when using four scales and the composite score. Second, the single dimension yielded more coherent and intelligible outcomes. Third, employing one dimension, instead of four, helped us avoid including too many variables in the regressions, as this would have needed a larger sample. Fourth, this composite score has already been used in the literature (Rieffe et al., 2016). Descriptive statistics and reliability for the composite score of emotion awareness at T1 are presented in Table 1.

Self-Report Coping Scale-Revised (SRCS-R). The SRCS-R was administered to assess preadolescents' responses to a hypothetical situation of peer victimization. The questionnaire was originally developed by Causey and Dubow (1992), and then modified (Kochenderfer-Ladd & Skinner, 2002; Wright, Banerjee, Hoek, Rieffe & Novin 2010). We used the modified version by Wright and colleagues (2010), consisting of 29 items, which was translated from English to Italian by an Italian mother tongue and then back-translated from Italian to English by an English native speaker. Possible discrepancies were discussed and resolved.

The questionnaire includes the following statement: *“Imagine that a pupil at school is being mean to you by calling you bad names or hitting and pushing you. What would you do? There are all kinds of things that pupils could do if they were being picked on. Put a circle around the number that shows how much you would do each of the following things if you were being picked on”*.

Participants are asked to rate on a 5-point Likert scale, ranging from *never* (1) to *always* (5), how often they would use the strategy expressed by each item. The SRCS-R includes six coping scales: *problem-solving* (active cognitive strategies aimed at managing the stressful event and/or its consequences; 7 items, e.g., “I try to think of different ways to solve the problem”), *social support* (seeking support from parents, peers, or others; 4 items, e.g., “I ask someone in my family for advice”), *externalizing* (manifesting anger and aggressive behaviour; 4 items, e.g., “I get angry and throw or hit something”), *internalizing* (manifesting worry, fear, withdrawal, overthinking, or anxiety; 4 items, e.g., “I keep feeling afraid it will happen again”), *distraction* (trying not to think about the problem, focusing on other activities; 4 items, e.g., “I do something else to help me forget about it”), and *trivializing* (tendency to minimize or ignore the problem; 6 items, e.g., “I tell myself it doesn't matter”). Means, standard deviations, and internal reliabilities are displayed in Table 1.

Statistical Analyses

T-tests were conducted comparing boys and girls on the variables investigated in this study.

Pearson correlations were performed to assess correlations among study variables.

A hierarchical regression analysis was carried out, with somatic complaints at T1 as outcome variable. In the first step, gender, emotion awareness, and the six coping strategies were entered, whereas the interaction terms between gender and emotion awareness and between gender and the six coping strategies were entered in the second step. A second regression, in which the same variables were entered in two steps, was performed with somatic complaints at T2 as the outcome variable. In this case, we controlled for somatic complaints at T1, which were included in the first step.

In order to test moderated mediation, we used the PROCESS procedure for SPSS (Hayes, 2012), which calculates a series of regressions and includes all predictors in one block. This procedure yields unstandardized coefficients, generates direct and indirect effects and conditional effects in moderated mediation models, allows to test for multiple mediators, and calculates the indirect effect of each mediator after controlling for other mediators. A variable can be considered a mediator when it intervenes in the relation between the independent and the dependent variable, in a way that the predictor influences the mediator and the mediator, in turn, influences the dependent variable (Baron & Kenny, 1986; Holmbeck, 1997; Preacher & Hayes, 2008). Besides, moderated mediation also tests whether the direct and indirect effects on the output variable depends on another variable, i.e., the moderator (Hayes, 2015). We therefore employed Model 15 in PROCESS to test whether gender moderated the association between emotion awareness and somatic complaints (at T1 and at T2) through coping strategies (moderated mediation) (Hayes, 2015). Somatic complaints at T1 were included as a covariate when somatic complaints at T2 were the outcome variable. We used bootstrapping with 5000 resamples to compute 95% confidence intervals (seed = 1234). Confidence intervals that do not contain 0 denote statistically significant effects (Preacher & Hayes, 2008).

Results

Mean scores in Table 1 show that girls tended to seek help and to internalize more than boys, and to trivialize less than boys. No gender differences emerged for emotion awareness and somatic complaints. Correlations between study variables are displayed in Table 2.

[Table 2]

In order to test the hypotheses, we checked whether emotion awareness (first hypothesis) and coping strategies (second hypothesis) were linked to somatic complaints at T1 directly, and whether gender worked as a moderator. As displayed in Table 3, low scores on emotion awareness and problem solving, and high scores on internalizing and externalizing coping were associated with more somatic complaints at T1. In addition, the interaction term between gender and externalizing coping was significant. In order to analyse the slopes, we standardized somatic complaints and externalizing coping into z -scores: The association between externalizing coping and somatic complaints was significant for girls ($\beta = .61, p < .001$ for girls and $\beta = .12, ns$ for boys) (Figure 1).

[Table 3 and Figure 1]

In order to calculate the indirect effects of emotion awareness on somatic complaints at T1 through coping strategies (third hypothesis), and whether these were moderated by gender, we employed the PROCESS procedure (see Statistical Analyses section). The following significant conditional indirect effects were found for boys and girls: Emotion awareness was negatively associated with somatic complaints through internalizing, for boys ($B = -.04$; CI: LL = -0.108; UL = -0.005), and through externalizing ($B = -.10$; CI: LL = -0.180; UL = -0.039), internalizing ($B = -.04$; CI: LL = -0.088; UL = -0.004), and distraction ($B = -.03$; CI: LL = -0.070; UL = -0.004), for girls.

Statistical analyses to test the direct and indirect effects of emotion awareness on somatic complaints at T2 (fourth hypothesis) followed the same procedure. Results showed that somatic

complaints at T2 were only predicted by somatic complaints at T1 (Table 3). A significant mediation suggested an indirect effect of emotion awareness on somatic complaints at T2 through distraction, for boys ($B = -.10$; CI: LL = -0.318 ; UL = -0.000).

Discussion

This study contributed to the literature by analysing to what extent emotion awareness and coping with peer victimization were associated with somatic complaints in preadolescent boys and girls. Consistent with our first hypothesis, we found that lower emotion awareness was associated with higher somatic complaints (Camodeca & Rieffe, 2013; Rieffe et al., 2008; Rieffe & De Rooij, 2012). Poor emotion awareness hinders preadolescents from giving a meaning to their own emotional experience and from linking their feelings to the emotion-evoking event. This may lead to inadequate interactions with the social environment and contribute to somatic complaints (Rieffe, Meerum Terwogt, Bosch, et al., 2007; Rieffe et al., 2008). It is also possible that preadolescents with low emotion awareness are less open in social interactions, which prevents others (adults and peers) from responding empathically to their own needs (Rieffe & De Rooij, 2012).

In line with our second hypothesis, we found that, beyond emotion awareness, coping strategies were also associated with somatic complaints at T1. Problem solving was negatively associated with somatic complaints, indicating that active cognitive efforts aimed at facing the problem can lead towards its resolution, decreasing, in turn, the risk of manifesting somatic complaints (Frydenberg & Lewis, 2009). We also found a negative correlation between social support and somatic complaints. This association was not confirmed in the regression analyses, likely because the greater effects of maladaptive coping could have overcome the effect of social support. In line with previous literature (Miers et al., 2007; Pouw et al, 2013), trivializing and distraction were not correlated with somatic complaints at T1.

As expected, maladaptive coping strategies (i.e., internalizing and externalizing) had a

positive direct effect on somatic complaints (Mahady-Wilton et al., 2000; Spence et al., 2009), indicating that both worrying and getting angry are obstacles to the resolution of the problem. Internalizing coping may be seen as the result of suppressed negative feelings of concern and preoccupation associated with the interpersonal stressor. Preadolescents who are overwhelmed by these unexpressed feelings may experience and communicate their psychological distress through a somatic, rather than an emotional form. The tendency to withdraw negative feelings may lead to further isolation, which may even exacerbate somatic complaints. However, as our findings showed, the opposite situation, namely expressing negative emotions (e.g., anger) in an exaggerate manner, could also be dysfunctional. Indeed, as suggested by previous literature, strong negative emotional arousal may have a negative effect on bodily functioning and could be associated with organic changes, such as somatic complaints (Kellner, 1991). Furthermore, it is likely that dealing with stressful events by getting angry generates negative reactions by adults and peers. For instance, parents and teachers could adopt a punitive style, while children could walk away from their angry peers. This picture may even exacerbate negative feelings of anger and contribute to somatic complaints.

Externalizing coping appeared to be potentially problematic for girls. Indeed, girls who deal with stress by shouting, saying bad words, or slamming doors behave against their stereotypical gender role, which prescribes them to self-regulate and be polite (Mills, 2005). We may speculate that negative emotions in girls, such as anger, may be accompanied by others' disapproval or induced guilt feelings, which may exacerbate emotional distress, together with the risk of incurring in somatic complaints (Ferguson, Stegge, Miller, & Olsen, 1999).

In respect to our third hypothesis, moderated mediation analyses showed that externalizing coping mediated the relationship between emotion awareness and somatic complaints in girls, which seems to confirm our speculation about gender roles. Instead, internalizing coping worked as

a mediator in the relationship between poor emotion awareness and somatic complaints for both boys and girls. We may assume that a difficulty in managing one's own emotions leads to ruminative thoughts and catastrophizing, which, in turn, contribute to somatic complaints (Lahaye, Van Broeck, Bodart, & Luminet, 2013; Rieffe et al., 2008; Villanueva, Prado-Gasco, & González Barrón, 2016). Although literature is quite consistent in reporting that girls show more internalizing coping strategies than boys (Hampel & Petermann, 2005), we found that these coping strategies mediated the association between emotion awareness and somatic complaints also for boys. Poor emotion awareness leads to fearful and anxious reactions, which, in line with what has been previously argued about gender stereotypes, do not fit boys' gender expectancies. Hence, boys who use internalizing coping could be at risk of being stigmatized and judged by adults and peers. This picture may increase their emotional distress and be associated with a change in their physiological activity (Kellner, 1991). Thus, beyond a poor emotion awareness and the ineffectiveness of internalizing, we may speculate that also contextual and cultural factors may play a role in the aetiology of somatic complaints.

Finally, for girls, emotion awareness was associated with somatic complaints also through distraction, which was, actually, not directly associated with somatic complaints, suggesting that per se distraction is not a negative strategy. However, it may serve as a dysfunctional strategy among girls with a low emotion awareness, who could be overwhelmed by their own emotions and may not be equipped to actively deal with a stressful situation. In other words, we may speculate that these girls have difficulties in engaging in active coping strategies. For instance, problem solving could be too demanding or challenging for them, while it could be easier to distract from the problem. However, for these preadolescents, distraction may assume a negative valence or lead to negative consequences, because it is the result of a poor ability to deal with emotions and actively cope with the problem. Indeed, although distraction may help to avoid the stressful situation, it contributes

neither to solve the problem, nor to recover from the negative emotional state derived from peer victimization, which may be a significant interpersonal stressor during preadolescence (Frydenberg & Lewis, 2009; Lahaye et al., 2011). Therefore, despite the effort to draw the attention away, the unsolved problem, together with the strong negative feelings could turn into organic problems, such as somatic complaints. However, given the contrasting findings in the literature, cautiousness is needed with the interpretation of this result. Indeed, as found by Hampel and Petermann (2005), distraction could be effective for younger children when dealing with interpersonal stressful events, but it could not be a good strategy for preadolescents, as in our sample.

With respect to our fourth hypothesis, correlations underlined that lower emotion awareness and higher internalizing and externalizing coping at T1 were associated with more somatic complaints at T2. However, when all variables entered in the regression, these effects disappeared, and only distraction longitudinally mediated the relationship between emotion awareness and somatic complaints for boys, again supporting the hypothesis that this coping strategy may be ineffective during preadolescence if associated with a poor emotion awareness. However, the reason why these results were not confirmed also longitudinally for girls needs further investigation. It is likely that other mediators might intervene, such as real or repeated experiences of victimization by peers.

Although several clear findings were yielded cross-sectionally, with respect to longitudinal data we only found partial confirmation of our hypotheses. It is likely that the few longitudinal effects are due to the T2 small sample size, or that the strong contribution of somatic complaints at T1 (controlled in the regression) reduced the effect of the other variables. Furthermore, emotion awareness and coping strategies may not be stable over a one-year time-span. For instance, it is likely that preadolescents use specific coping strategies (e.g., externalizing or internalizing) in response to temporary stressful events or during particularly stressful periods. Nevertheless, the

longitudinal associations underline the importance of emotion awareness and coping strategies, which extend their influence also in the long run.

Limitations, Strength Points, and Suggestions for Future Research

Some limitations in the present study need to be acknowledged. The use of self-reports could have affected the results in producing common shared variance. Hence, a multi-informant methodology could strengthen our findings. Further, we considered coping strategies in relation to a specific interpersonal stressful event, such as peer victimization; however, we did not assess coping strategies in the face of other daily hassles and interpersonal problems (i.e., school problems, difficult relationships within family).

As already mentioned, the small T2 sample could have contributed to yielding few longitudinal effects. Hence, future research should replicate these findings with larger samples. More research is needed to study the development of emotion awareness, coping, and somatic complaints, in order to illuminate their stability and change across preadolescence. It would be useful to incorporate transitional designs, including a longer time-span (e.g., from childhood to adolescence and adulthood), as well as measurements over more time points.

Future research may also investigate other variables, which may intervene in the relationship between emotion awareness, coping strategies, and somatic complaints. Findings of the present study suggest that poor emotion awareness contribute to maladaptive coping skills, which in turn are related to somatic complaints. However, we did not find that good emotion awareness reduces somatic complaints through adaptive coping strategies. It is likely that other variables, such as social skills or empathy, play a mediating role. Besides, interpersonal dynamics, such as popularity, family functioning, or teacher-child relationship may also be involved.

Despite these limitations, theoretical and practical implications of this study can be drawn. The present findings extended our knowledge regarding the correlates of somatic complaints and

the role of coping strategies, also indicating that coping strategies can be differently associated with somatic complaints in preadolescent boys and girls. Besides, the intertwining between emotion awareness and coping strategies points to the need to consider them together to implement effective intervention programs. It seems extremely important that preadolescents are encouraged to properly express and handle their own emotions. At the same time, they should learn to use adaptive coping strategies in response to stressful events, in order to effectively deal with them, rather than acting out anger or withholding emotions. Focusing on emotions and effective coping strategies may help to reduce somatic complaints among preadolescents and foster better social and psychological adjustment.

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi: 10.1037/0022-3514.51.6.1173
- Camodeca, M., & Rieffe, C. (2013). Validation of the Italian Emotion Awareness Questionnaire for children and adolescents. *European Journal of Developmental Psychology*, *10*, 402-409. doi: 10.1080/17405629.2012.694609
- Causey, D. L., & Dubow, E. F. (1992). Development of a self-report coping measure for elementary school children. *Journal of Clinical Child Psychology*, *21*, 47-59. doi: 10.1207/s15374424jccp2101_8
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Harding Thomsen, A., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress and potential in theory and research. *Psychological Bulletin*, *127* (1) 87-127. doi: 10.1037//0033-2909
- Cowie, H. (2000). Bystanding or standing by: Gender issues in coping with bullying in English schools. *Aggressive Behavior*, *26*, 85-97. doi: 10.1002/(SICI)1098-2337(2000)26:1<85::AID-AB7>3.0.CO;2-5
- Dubow, E. F., & Rubinlicht, M. (2011). Coping. In B. B. Brown & M. J. Prinstein (Eds.), *Encyclopedia of adolescence, Volume 3* (pp. 109-118). San Diego, CA: Academic Press. doi: 10.1016/B978-0-12-373915-5.00107-8
- Ferguson, T. J., Stegge, H., Miller, E. R., & Olsen, M. E. (1999). Guilt, shame, and symptoms in children. *Developmental Psychology*, *35*, 347-357. doi: 10.1037/0012-1649.35.2.347
- Frydenberg, E., & Lewis, R. (2009). Relations among well-being, avoidant coping, and active coping in a large sample of Australian adolescents. *Psychological Reports*, *104*(3), 745-758. doi: 10.2466/PRO.104.3.745-758

- Garnefski, N., Rieffe, C., Jellesma, F., Meerum Terwogt, M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in 9-11 year-old children: The development of an instrument. *European Child & Adolescent Psychiatry, 16*, 1-9. doi: 0.1007/s00787-006-0562-3
- Gini, G., Carli, G., & Pozzoli, T. (2009). Social support, peer victimization, and somatic complaints: A mediational analysis. *Journal of Pediatrics & Child Health, 45*, 358-363. doi: 10.1111/j.1440-1754.2009.01501.x
- Hamilton, J. L., Kleiman, E. M., Rubenstein, L. M., Stange, J. P., Flynn, M., Abramson, Y., & Alloy, L. B. (2016). Deficits in emotional clarity and vulnerability to peer victimization and internalizing symptoms among early adolescents. *Journal of Youth & Adolescence, 45*, 183-194. doi: 10.1007/s10964-015-0260-x
- Hampel, P., & Petermann, F. (2005). Age and gender effects on coping in children and adolescents. *Journal of Youth and Adolescence, 34*(2), 73-83. doi: 10.1007/s10964-005-3207-9
- Hansen, T. B., Steenberg, L. M., Palic, S., & Elklit, A. (2012). A review of psychological factors related to bullying victimization in schools. *Aggression and Violent Behavior, 17*, 383-387. doi: 10.1016/j.avb.2012.03.008
- Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling. Retrieved from <http://www.afhayes.com/>
- Hayes, A. F. (2015) An index and test of linear moderated mediation. *Multivariate Behavioral Research, 50*, 1-22. doi: 10.1080/00273171.2014.962683
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child - clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599-610. doi: 10.1037//0022-006X.65.4.599

- Jellesma, F. C., Rieffe, C., & Meerum Terwogt, M. (2007). The Somatic Complaint List: Validation of a self-report questionnaire assessing somatic complaints in children. *Journal of Psychosomatic Research*, *63*, 399-401. doi: 10.1016/j.jpsychores.2007.01.017
- Jellesma, F. C., Rieffe, C., & Meerum Terwogt, M. (2008). My peers, my friend and I: Peer interactions and somatic complaints in boys and girls. *Social Science and Medicine*, *66*, 2195-2205. doi: 10.1016/j.socscimed.2008.01.029
- Jellesma, F. C., Rieffe, C., Meerum Terwogt, M., & Kneepkens, F. (2006). Somatic complaints and health care use in children: Mood, emotion awareness and sense of coherence. *Social Science and Medicine*, *63*, 2640-2648. doi: 10.1016/j.socscimed.2006.07.004
- Kellner, R. (1991). *Psychosomatic syndromes and somatic symptoms*. Washington, DC: American Psychiatric Press.
- Lahaye, M., Fantini-Hauwel, C., Van Broeck, N., Bodart, E., & Luminet, O. (2011). Emotional competence and quality of life of children with asthma: The mediating effect of coping strategies. *Psychology and Health*, *26*, 1678–1695. doi:10.1080/08870446.2011.562606
- Lahaye, M., Van Broeck, N., Bodart, E., & Luminet, O. (2013). Predicting quality of life in pediatric asthma: The role of emotional awareness and personality. *Quality of Life Research*, *22*, 907-916. doi: 10.1007/s11136-012-0194-7
- Lahaye, M., Luminet, O., Van Broeck, N., Bodart, E., & Mikolajczak, M. (2010). Psychometric properties of the Emotion Awareness Questionnaire for children in a French-speaking population. *Journal of Personality Assessment*, *92*, 317–326. doi: 10.1080/00223891.2010.482003
- Leadbeater, B. J., Kuperminc, G. P., Hertzog, C., & Blatt, S. J. (1999). A multivariate model of gender differences in adolescents' internalizing and externalizing problems. *Developmental Psychology*, *35*(5), 1268-1282. doi: 10.1037//0012-1649.35.5.1268

- Kochenderfer-Ladd, B., & Skinner, K. (2002). Children's coping strategies: Moderators of the effects of peer victimization? *Developmental Psychology*, *38*(2), 267-278. doi: 10.1037//0012-1649.38.2.267
- Kristensen, S. M., & Smith, P. K. (2003). The use of coping strategies by Danish children classed as bullies, victims, bully/victims, and not involved, in response to different (hypothetical) types of bullying. *Scandinavian Journal of Psychology*, *44*, 479-488. doi: 10.1046/j.1467-9450.2003.00369.x
- Mahady-Wilton, M. M., Craig, W. M., & Pepler, D. J. (2000). Emotional regulation and display in classroom victims of bullying: Characteristics expressions of affect, coping styles and relevant contextual factors. *Social Development*, *9*(2), 226-245. doi: 10.1111/1467-9507.00121
- McLaughlin, K.A., Hatzenbuehler, M. L., & Hilt, L. M. (2009). Emotion dysregulation as mechanism linking peer victimization to internalizing symptoms in adolescence. *Journal of Consulting & Clinical Psychology*, *77*(5), 894-904. doi: 10.1037/a0015760
- Mills, S. (2005). Gender and impoliteness. *Journal of Politeness Research*, *1*(2), 263-280. doi: 10.1515/jplr.2005.1.2.263
- Miers, A. C., Rieffe, C., Meerum Terwogt, M., Cowan, R., & Linden, W. (2007). The relation between anger coping strategies, anger mood and somatic complaints in children and adolescents. *Journal of Abnormal Child Psychology*, *35*, 653-664. doi: 10.1007/s10802-007-9120-9
- Naylor, P., Cowie, H., & del Rey, R. (2001). Coping strategies of secondary school children in response to being bullied. *Child Psychology and Psychiatry Review*, *6*(3), 114-120. doi: 10.1111/1475-3588.00333
- Ordóñez, A. Maganto, C., & González, R. (2015). Somatic complaints, emotional awareness and

maladjustment in schoolchildren. *Anales de Pediatría*, 82, 308-315.

Pennebaker, J. W. (1984). Accuracy of physical symptoms. In A. Baum, S. E. Taylor, & J. E. Singer (Eds.), *Handbook of psychology and health, Vol. 4* (pp. 189-217). Hillsdale, NJ: Erlbaum. doi: 10.1016/S0304-3959(00)00269-4

Pouw, L. B. C., Rieffe, C., Stockmann, L., & Gadow, K. D. (2013). The link between emotion regulation, social functioning and depression in boys with ASD. *Research in Autism Spectrum Disorders*, 7, 549–556. doi: 10.1016/j.rasd.2013.01.002

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891. doi: 10.3758/BRM.40.3.879

Rieffe, C., Broekhof, E., Kouwenberg, M., Faber, J., Tsutsui, M. M., & Güroğlu, B. (2016). Disentangling proactive and reactive aggression in children using self-report. *European Journal of Developmental Psychology*, 13, 439-451. doi: 10.1080/17405629.2015.1109506

Rieffe, C., & De Rooij, M. (2012). The longitudinal relationship between emotion awareness and internalising symptoms during late childhood. *European Child and Adolescent Psychiatry*, 21, 349-356. doi: 10.1007/s00787-012-0267-8

Rieffe, C., Meerum Terwogt, M., Bosch, J. D. (2004). Emotion understanding in children with frequent somatic complaints. *European Journal of Developmental Psychology*, 1(1), 31-47. doi: 10.1080/17405620344000013

Rieffe, C., Meerum Terwogt, M., Bosch, J. D., Kneepkens, C. M. F., Douwes, A. C., & Jellesma, F. C. (2007). Interactions between emotions and somatic complaints in children who did seek or did not seek medical care. *Cognition & Emotion*, 21(8), 1630-1646. doi: 10.1080/02699930701238495

Rieffe, C., Meerum Terwogt, M., Petrides, K. V., Cowan, C., Miers, A. C., & Tolland, A. (2007).

- Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, 43, 95-105. doi: 10.1016/j.paid.2006.11.015
- Rieffe, C., Oosterveld, P., Miers, A. C., Meerum Terwogt, M., & Ly, V. (2008). Emotion awareness and internalising symptoms in children and adolescents: The Emotion Awareness revised. *Personality and Individual Differences*, 45, 756-761. doi: 10.1016/j.paid.2008.08.001
- Salmivalli, C., Karhunen, J., & Lagerspetz, K. (1996). How do the victims respond to bullying? *Aggressive Behavior*, 22, 99-109. doi: 10.1002/(SICI)1098-2337(1996)22:2<99::AID-AB3>3.0.CO;2-P
- Smith, P. K., Talamelli, L., Cowie, H., Naylor, P., & Chauhan, P. (2004). Profiles of non-victims, escaped victims, continuing victims and new victims of school bullying. *British Journal of Educational Psychology*, 74, 565-581. doi: 10.1348/0007099042376427
- Spence, S. H., De Young, A., Toon, C., & Bond, S. (2009). A longitudinal examination of the associations between emotional dysregulation, coping responses to peer provocation, and victimization in children. *Australian Journal of Psychology*, 61 (3), 145-155. doi: 10.1080/00049530802259076
- Van der Veek, S. M. C., Derkx, H. H. F., de Haan, E., Benninga, M. A., & Boer, F. (2012). Emotion awareness and coping in children with functional abdominal pain: A controlled study. *Social Science and Medicine*, 74, 112-119. doi: 10.1016/j.socscimed.2011.10.023.
- Vanaelst, B., De Vriendt, T., Ahrens, W., Bammann, K., Hadjigeorgiou, C., Konstabel, K., ... & De Henauw, S. (2012). Prevalence of psychosomatic and emotional symptoms in European school-aged children and its relationship with childhood adversities: Results from the IDEFICS study. *European Journal of Child and Adolescent Psychiatry*, 21, 253-265. doi: 10.1007/s00787-012-0258-9.
- Veirman, E., Brouwers, S. A., & Fontaine, J. R. J. (2011) The assessment of emotional awareness in

children. Validation of the levels of emotional awareness scale for children. *European Journal of Psychological Assessment*, 27, 265-273. doi: 10.1027/1015-5759/a000073

Villanueva, L., Prado-Gasco, V., González Barrón, R. (2016). Emotion awareness, mood and personality as predictors of somatic complaints in children and adults. *Psicothema*, 28(4), 383-388. doi: 10.7334/psicothema2015.265

Wright, M., Banerjee, R., Hoek, W., Rieffe, C., & Novin, S. (2010). Depression and social anxiety in children: Differential links with coping strategies. *Journal of Abnormal Child Psychology*, 38, 405-419. doi: 10.1007/s10802-009-9375-4

Uncorrected Author Proof

Table 1

Psychometric Properties of the Study Variables and T-values for Gender Differences.

Variable	<i>n</i> items	Cronbach α		<i>M</i> (<i>SD</i>)		t-test <i>df</i> = 263	95% CI
		Boys	Girls	Boys	Girls		
Emotion Awareness	20	.78	.79	2.06 (.33)	1.98 (.32)	1.94	[-.00,.16]
Problem solving	7	.76	.64	3.56 (.73)	3.69 (.67)	-1.60	[-.29,.03]
Social support	4	.82	.82	3.05 (1.09)	3.44 (1.07)	-2.96**	[-.65,-.13]
Externalizing	4	.67	.77	1.90 (.80)	1.75 (.82)	1.57	[-.04,.35]
Internalizing	4	.67	.65	2.74 (.93)	3.02 (.85)	-2.52*	[-.49,-.06]
Distraction	4	.73	.69	2.94 (.96)	2.79 (.87)	1.38	[-.07,.38]
Trivializing	6	.80	.76	2.44 (.88)	2.05 (.75)	3.85***	[.19,.58]
Somatic complaints T1	11	.69	.75	1.55 (.28)	1.62 (.32)	-1.84	[-.14,.00]
Somatic complaints T2 ^a	11	.81	.79	1.48 (.34)	1.57 (.35)	-1.24 ^a	[-.22,.05]

Note. Boys = 137; girls = 128. CI = confidence intervals. Items of the Emotion Awareness Questionnaire and of the Somatic Complaints List have a range 1-3; items of the Self-Report Coping Scale have a range 1-5. ^aAt T2: Boys = 50; Females = 47; degrees of freedom = 95.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2

Correlations among Study Variables.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Emotion Awareness								
2. Problem solving	.08							
3. Social support	.17**	.34***						
4. Externalizing	-.22***	-.08	-.14*					
5. Internalizing	-.23***	.30***	.26***	.16**				
6. Distraction	-.19**	.12	-.02	.10	.16*			
7. Trivializing	-.08	-.09	-.24***	.07	-.28***	.34***		
8. Somatic complaints T1	-.38***	-.14*	-.15*	.36***	.25***	.11	-.06	
9. Somatic complaints T2 ^a	-.26*	-.06	-.01	.23*	.26**	.10	.02	.48***

Note. ^aAt T2: Boys = 50; Girls = 47.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Regression Coefficients of Gender, Emotion Awareness, and Coping Strategies on Somatic Complaints at T1 and at T2.

	Somatic complaints T1			Somatic complaints T2		
	R^2	B	95% CI	R^2	B	95% CI
<i>Step 1</i>	.29***			.27**		
Gender		.10	[-.00,.07]		.07	[-.04,.10]
Somatic complaints T1		/	/		.42***	[.22,.74]
Emotion Awareness		-.24***	[-.32,-.11]		-.10	[-.31,.12]
Problem solving		-.14*	[-.12,-.01]		-.03	[-.12,.10]
Social support		-.10	[-.06,.00]		.13	[-.03,.11]
Externalizing		.26***	[.06,.14]		.11	[-.04,.14]
Internalizing		.18**	[.02,.10]		-.01	[-.09,.09]
Distraction		.05	[-.02,.06]		.04	[-.07,.10]
Trivializing		-.07	[-.07,.02]		.02	[-.09,.10]
<i>Step 2</i>	.37***			.37		
Gender X Externalizing		.57***	[.05,.13]		.27	[-.05,.14]

Note. CI = confidence intervals. Gender was coded as Boys = -1 and Girls = 1. Only statistically significant interaction terms were displayed in step 2.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1

Interaction between Gender and Externalizing Coping on Somatic Complaints at T1.

