



Importance of Child Emotion Regulation for Prevention of Internalized and Externalized Problems

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ABSTRACT: Emotion regulation is viewed as an integral process of child competence, showing whether a child is ready for challenges of interaction, and contact with self and others. It is defined as successful and effortful internal adjustment of emotional arousal with the intention of good social adaptation and harmonious functioning. Aims of this study were to determine gender differences in emotion regulation and observed internalized and externalized behavioural problems of school-age children, assess the correlations between emotion regulation and behavioural problems, and examine the relations between different levels of emotion regulation and observed behaviours. The study included 200 children (ages 6 to 8). At the beginning of first grade teachers completed measures of children's social-emotional functioning as well as their internalized and externalized behavioural problems. The results showed significant correlations between emotion regulation and observed internalized and externalized problems (internalized symptoms, lack of attention, hyperactive-impulsive behaviour, peer problems, oppositional aggressive behaviour, and conduct problems). It was also found that children with lower levels of emotion regulation expressed more severe internalized and externalized behavioural problems and vice versa. The findings were discussed with respect to the importance of sustainable delivery of effective and evidence-based prevention strategies in an education system with particular emphasis on social-emotional learning approaches where core program components address emotion regulation skills.

Keywords: *emotion regulation, internalized problems, externalized problems, prevention*

Introduction

Even though the definition of emotion is fuzzy (Izard, 2010; Lang, 2010) and researchers studying emotions operationalize it differently, emotions could be considered as inner experiences and reactions to internal and external events, comprising from physiological and somatic components that are evaluated, appraised and expressed to others in specific personal style, saturating our experience with meaning, and guiding our behaviour. How we adjust them to given context has an effect on our inner and outer world, which could be either helpful or harmful (Bowie, 2010; Lopes, Salovey, Côté, & Beers, 2005; Zarolia, McRae, & Gross, 2015). The process of emotion adjustment strategy is called emotion regulation and refers to series of actions by which we experience emotions, the way we change them, and the way we show them to others (Zarolia et al., 2015). To date, the term has often been exchanged with various related terms such as affect regulation, emotion management, and emotion control (Cole, Martin, & Dennis, 2004). Shifts in the research context as well as in focus on different psychological processes and age groups have made the term broad and diffused.

The aim of this paper is to explore the importance of emotion regulation skills of school-age children with regard to the occurrence of some internalized and externalized behavioural problems. In this paper, we define emotion regulation as successful and effortful internal adjustment of emotional arousal with the intention of good social adaptation and harmonious functioning with others (Calkins, Gill, Johnson, & Smith, 1999; Cole, Martin, & Dennis, 2004; Lopes et al., 2005; Rydell, Berlin, & Bohlin, 2003). In addition, adjustment is connected with questions of if, when, and how one experiences emotions and related motivational and physiological states, as well as the question of the manner in which emotions are expressed behaviourally (LeBlanc, Essau, & Ollendick, 2017). This emotional fine-tuning and adjusting to social cues in early school years has its clinical and practical value. It is considered a critical precursor of typical and atypical development as well as healthy emotional functioning (Berking & Wupperman, 2012; Cole, Martin, & Dennis, 2004). Emotion regulation construct serves to explain how emotions facilitate other complex processes. This construct is crucial for problem solving, directing attention, and establishment of relationships since it contributes to personality development and underpins child's current and future mental health as well as academic performance, competence, imagination, and creativity (Berking & Wupperman, 2012; Grouzet, Sokol, & Müller, 2013; Lopes et al., 2005; Phye, Shutz, & Pekrun, 2011; Southam-Gerow & Kendall, 2002). Next sections will introduce emotion regulation development and emotional socialization of children entering school system, as well as consequences of maladaptive regulation.

Emotion regulation development until age 6 to 8

Regarding development, children show individual differences in terms of intensity and frequency at which they express emotions (LeBlanc, Essau, & Ollendick, 2017). The manner in which a caregiver is responding to the child's emotion expression is crucial, both for development of emotion regulation, as well as the child's attachment style (LeBlanc, Essau, & Ollendick, 2017).

Emotion regulation development is affected by a variety of biological, genetic, and environmental factors. Firstly, modulations of emotional reactivity are the product of a child's temperament since children differ in the type of emotion they sense and frequency of their response to stimuli (Fox & Calkins, 2003). Next in order in emotion socialization is caregiver's emotional socialization (Friedlmeier, Corapci, & Cole, 2011; Gullone, Hughes, King, & Tonge 2010; LeBlanc, Essau, & Ollendick, 2017; Raffaelli, Crocket, & Shen, 2005), the essential model and guidance during early development of the child. Later on, family context, especially the way parents deal with negative emotions and experiences is complemented with peer interactions during play, experiences in the school context, and more complex social exchanges. During the preschool period, as children become more independent in handling everyday frustrations, they learn more sophisticated internal and external strategies and coping skills to regulate their emotions (Friedlmeier, Corapci, & Cole, 2011; Gullone, Hughes, King, & Tonge, 2010).

Early regulation attempts until the age of five include distraction, self-soothing, help-seeking behaviour, and focus on adults (LeBlanc, Essau, & Ollendick, 2017). During early school years, there is an increase in children's use of planful coping (Eisenberg, Hernandez, & Spinrad, 2017), going from problem focus and objective conditions in younger age to lessening of emotional distress and accommodating to conditions at an older age. According to Zarolia et al. (2015), school children most commonly use distraction (i.e., shifting attention to less distressing content), reappraisal (cognitive change of meaning to decrease the impact), and suppression (changing our response to lessen the intensity). These skills are especially important in establishing positive peer relations (Denham et al., 2003; Grouzet, Sokol, & Müller, 2013; Keenan, 2000). It is obvious that cognitive abilities have to be well developed and in place for willingful and effortful emotion adjustment to exist. Relationship and cognitive abilities are intertwined and continue to develop with brain plasticity, even through adulthood (Fox & Calkins, 2003; Graziano, Reavis, Keane, & Calkins, 2007; LeBlanc, Essau, & Ollendick, 2017). Children in elementary school still need strong leadership of adults, especially in cases of intense emotional states (Fox & Calkins, 2003). Regulation is then external; improved if a teacher, a compassionate parent, or an older sibling is present offering

coaching and guidance (LeBlanc, Essau, & Ollendick, 2017). Such extrinsic factors support intrinsic regulation development, too.

Studies of emotion regulation and problem behaviour of children

Knowing typical child developmental pathways is important for intervention selection from preventive, clinical, and practical perspectives. Namely, regulation and control of emotions have a strong negative association with behavioural and emotional problems of children. Externalized problems are defined by the lack of control, whereas internalized are linked to the overt constraint of emotions and behaviour (Berking & Wupperman, 2012; Eisenberg et al., 2001; Eisenberg, Hernandez, & Spinrad, 2017; Lopes et al., 2005; Southam-Gerow & Kendall, 2002). The heuristic model of regulation, emotional intensity, and different developmental outcomes was proposed by Eisenberg and Fabes during 1992 (Eisenberg, Hernandez, & Spinrad, 2017). They propose that externalized behavioural problems are related to lack of effortful control and high levels of impulsivity. There is a growing body of literature connecting externalized problems to lower regulation, including an inability to inhibit behaviour and focus attention (Blair, Denham, Kochanoff, & Whipple, 2004; Eisenberg, Hernandez, & Spinrad, 2017). This is seen early on. For example, infants exhibiting fewer emotion-regulation behaviours are more likely to display noncompliance as toddlers (Southam-Gerow & Kendall, 2002). It seems that children who exhibit aggressive behaviour towards peers have developed inappropriate strategies for the feeling of anger early on in life (Blair et al., 2004; Calkins, Gill, Johnson, & Smith, 1999).

The relationship between internalized symptomatology and emotion regulation is a bit less clear due to mixed results. For example, Berking and Wupperman (2012) state that both depressed and anxious states are related to a poorer understanding of emotions, negative emotional reactivity, smaller ability to support themselves, and self-soothe. The results depend upon a specific type of problem as well as inconsistency in emotion regulation measures, some of which measure effortful and voluntary part of regulation while others measure involuntary processes. It seems that the confounding of measures of regulation and measures of internalized problems is more often the case (Eisenberg, Hernandez, & Spinrad, 2017). Longitudinal data suggests a negative relationship of emotion regulation and internalized problems (King, Lengua, & Monahan, 2013) but there is also some evidence of a positive relationship and nonsignificant relation according to Eisenberg, Hernandez and Spinrad (2017). Studies suggest that when talking about specific problem behaviour, one has to take into account emotionality and specific regulation strategies (Eisenberg, Hernandez, & Spinrad, 2017). However, some argue that gender is also important.

Gender differences in emotion regulation and behavioural problems

In their meta-analysis, Chaplin and Aldao (2013) have analysed 555 effect sizes from 166 studies focused on gender differences in expression of emotions. Significant but very small gender differences were found overall, with girls showing more positive emotions ($g = -.08$) and internalized emotions (e.g., sadness, anxiety, sympathy; $g = -.10$) than boys, and with boys showing more externalized emotions (e.g., anger; $g = .09$).

In a study focused on emotion regulation of preschool and school-aged children (3 to 6 years old), Bowie (2010) checked for a moderating role of gender in the relationship of emotion regulation and internalized problems and found no significant effect of gender. However, Blair et al. (2004) studied social competence of pre-schoolers and found that girls and boys significantly differ in the level of internalized and externalized behaviours. In their study, girls were rated as socially more competent, with fewer behaviours from either behavioural problem spectrum.

Aims of the study

Aims of the study presented in this paper are:

- (1) to determine gender differences in emotion regulation and observed internalized and externalized behavioural problems (internalized symptoms, lack of attention, hyperactive-impulsive behaviour, peer problems, oppositional aggressive behaviour, and conduct problems) of school-age children;
- (2) to assess the correlations between emotion regulation and internalized and externalized behavioural problems, and
- (3) to examine the relations between different levels of emotion regulation (lower and higher) and observed behaviours.

Method

This study was conducted within a larger, international research project named “European Assessment Protocol for Children’s SEL Skills (EAP_SEL)” led by the University of Perugia, Italy. The project explored the effectiveness of different SEL programs, including PATHS (Kusché & Greenberg, 1994), and was funded through the European Funding Programme in the Field of Education and Learning, known as Lifelong Learning Programme 2007-2013 (LLP). The research was approved by the Institutional Review Ethical Board of the Faculty of Education and Rehabilitation Sciences at the University of Zagreb which confirmed that all ethical principles of

research with children were respected. Active informed consent was obtained from all classroom teachers who then got active informed consent from parents of all children participating in the study. The parents were informed that the results of teachers' observations would be kept confidential and that only the researchers would see their completed questionnaires.

Participants

The study included 200 elementary school children from schools in the City of Zagreb, Croatia of ages 6 to 8 with an average age of 7.1 (SD = .39); at the time of research 6 children in the sample were 6 (3.4%), 150 were 7 (83.8%), and 23 children were 8 years old (12.8%). The age of the children in the sample is typical for all children in the first grade of elementary school in Croatia. About 47% of children were girls ($N=94$) and 53% were boys ($N=106$).

Data collection

According to selected criteria for ensuring the representativeness of this sample (city district, school size, school success), 10 primary schools from the City of Zagreb were selected to participate in this study. From each school, two first grade classes were randomly selected to participate in the research (20 classrooms altogether). After written consents were collected from the parents, 10 students from each class were selected to be observed by a teacher. Five of the 10 were randomly selected. The other 5 were selected in a way that the teacher was asked to suggest 2 students from a classroom with very weak social-emotional skills, 2 students with very well developed social-emotional skills, and a student with average social-emotional skills. These suggestions were based on their previous experiences with those students and their behaviour in a classroom. At the beginning of October 2013, trained researchers have administered the questionnaires to all teachers for all selected students in their classrooms. Teachers were asked to observe selected students from their classroom and complete the questionnaires during a period of two weeks.

Measures

Measures used in this study were back-translated, tested, and shown to be valid within previously conducted studies in Croatia (Mihic et al., 2016; Novak et al., 2016).

The measures of child behaviours were as follows:

Emotion regulation. Emotion regulation was assessed with seven items from the *Social Competence Scale* (Corrigan, 2003) and included items like "Controls temper when there is a disagreement" and "Accepts things not going her/his way". All items were rated on a

six-point Likert scale with response options ranging from “almost never” to “almost always” (Cronbach’s alpha = .92 for reliability/internal consistency of the subscale).

Internalized symptoms. Internalized symptoms were assessed with six items of *Child Behaviour Questionnaire* (modelled after Bierman et al., 2008). Examples of items are “Avoids playing with other children” and “She/he is sad and unhappy”. The teachers used the Likert scale of six rankings to evaluate their response from “almost never” to “almost always” (Cronbach’s alpha = .82 for reliability/internal consistency of the subscale).

Inattention. Inattention was assessed with eight items of *Child Activity Scale* (DuPaul, 1991). The scale contained items like “Has trouble following directions” and “Is easily distracted.” All items were rated on a four-point Likert scale with response options ranging from “not at all” to “very much” (Cronbach’s alpha = .95 for reliability/internal consistency of the subscale).

Hyperactive-impulsive behaviour. The behaviour was assessed with five items from the Hyperactive-impulsive subscale of the *Strengths and Difficulties Questionnaire* (Goodman, 1997). Examples of items are “Restless, overactive, cannot stay still for long” and “Constantly fidgeting or squirming.” All items were rated on a three-point Likert scale, with response options ranging from “not true” to “certainly true” (Cronbach’s alpha = .92 for reliability/internal consistency of the subscale).

Peer problems. Peer problems were assessed with five items from the Peer Problems subscale of the *Strengths and Difficulties Questionnaire* (Goodman, 1997). Examples of items are “Generally not liked by other children” and “Rather solitary, prefers to play alone.” All items were rated on a three-point Likert scale, with response options ranging from “not true” to “certainly true” (Cronbach’s alpha = .67 for reliability/internal consistency of the subscale).

Oppositional aggressive behaviour. This behaviour was assessed with seven items of *Child Behaviour Questionnaire* (modelled after Bierman et al., 2008). The scale contained items like “Breaks things on purpose” and “Yells at others.” All items were rated on a six-point Likert scale with response options ranging from “almost never” to “almost always” (Cronbach’s alpha = .90 for reliability/internal consistency of the subscale).

Conduct problems. Conduct problems were assessed with five items from the *Strengths and Difficulties Questionnaire* (Goodman, 1997). Examples of items are “Often loses temper” and “Often fights with other children or bullies them.” All items were rated on a three-point Likert scale, with response options ranging from “not true” to “certainly true” (Cronbach’s alpha = .72 for reliability/internal consistency of the subscale).

Data analysis

In order to determine gender differences in emotion regulation, internalized and externalized behavioural problems, Mann - Whitney U test was performed since normal distribution assumption had not been met. Spearman's correlation test was conducted to determine correlations between emotion regulation and examined behaviours. Mann - Whitney U test was performed to test differences in behavioural problems according to the level of emotion regulation.

Children's results on a dimension of emotion regulation were categorized into two categories: lower and higher emotion regulation depending if their result on a particular dimension was lower or higher than the mean result of a group. Those children whose mean result on a dimension of emotion regulation was lower than 4.31 (group mean result) were considered to have lower levels of emotion regulation. Cohen's d effect sizes were also calculated.

Results

Gender differences in emotion regulation and internalized and externalized behavioural problems among children

The analysis of gender differences indicated statistically significant differences in two of seven examined behaviours (Table 1). These two behaviours were inattention ($U=3861$, $p=.014$) and hyperactive-impulsive behaviour ($U=3852$, $p=.011$).

In both cases, the average rank of these variables indicated that boys expressed this behaviour to a greater extent than girls. The statistically significant gender differences were not found for emotion regulation, internalized symptoms, peer problems, oppositional aggressive behaviour nor conduct problems.

TABLE 1 Gender differences in emotion regulation, internalized and externalized behavioural problems among children

<i>BEHAVIOURS</i>	<i>GENDER</i>	<i>N</i>	<i>MEAN</i>	<i>MANN-WHITNEY U</i>	<i>p</i>
			<i>RANK</i>		
<i>Emotion regulation</i>	<i>male</i>	<i>101</i>	<i>93.51</i>	<i>4293.5</i>	<i>.432</i>
	<i>female</i>	<i>91</i>	<i>99.82</i>		
<i>Internalized symptoms</i>	<i>male</i>	<i>103</i>	<i>94.35</i>	<i>4362.5</i>	<i>.479</i>
	<i>female</i>	<i>90</i>	<i>100.03</i>		
<i>Inattention</i>	<i>male</i>	<i>104</i>	<i>108.38</i>	<i>3861</i>	<i>.014*</i>
	<i>female</i>	<i>93</i>	<i>88.52</i>		
<i>Hyperactive-impulsive behaviour</i>	<i>male</i>	<i>106</i>	<i>108.42</i>	<i>3825</i>	<i>.011*</i>
	<i>female</i>	<i>91</i>	<i>88.03</i>		
<i>Peer problems</i>	<i>male</i>	<i>104</i>	<i>95.18</i>	<i>4438.5</i>	<i>.333</i>
	<i>female</i>	<i>92</i>	<i>102.26</i>		
<i>Oppositional aggressive behaviour</i>	<i>male</i>	<i>103</i>	<i>100.81</i>	<i>4242.5</i>	<i>.303</i>
	<i>female</i>	<i>90</i>	<i>92.64</i>		
<i>Conduct problems</i>	<i>male</i>	<i>106</i>	<i>101.40</i>	<i>4462.5</i>	<i>.375</i>
	<i>female</i>	<i>90</i>	<i>95.08</i>		

Note. * $p \leq .05$

The correlation between emotion regulation and some internalized and externalized behavioural problems

The Spearman correlation test showed that there was a statistically significant negative correlation between emotion regulation and all observed behavioural problems (Table 2).

TABLE 2 Correlations between emotion regulation, internalized and externalized behavioural problems

	1	2	3	4	5	6	7
1 <i>Emotion regulation</i>							
2 <i>Internalized symptoms</i>	-.69**						
3 <i>Inattention</i>	-.65**	.51**					
4 <i>Hyperactive-impulsive behaviour</i>	-.65**	.49**	.92**				
5 <i>Peer problems</i>	-.39**	.60**	.36**	.34**			
6 <i>Oppositional aggressive behaviour</i>	-.72**	.43**	.72**	.71**	.30**		
7 <i>Conduct problems</i>	-.56**	.35**	.60**	.62**	.27**	.71**	

Note. ** $p \leq .01$

The lower the emotion regulation skills, the higher were internalized and externalized behaviours. The strongest negative correlations were found for oppositional aggressive behaviour ($r=-.72$), internalized symptoms ($r=-.69$), inattention, and hyperactive-impulsive behaviour ($r=-.65$). Weaker, but still significant negative correlations were found between emotion regulation and conduct problems ($r=-.56$) and emotion regulation and peer problems ($r=-.39$). Significant positive correlations were found between all observed behavioural problems. The strongest positive correlations were those between inattention and hyperactive-impulsive behaviour ($r=.92$) and inattention and oppositional aggressive behaviour ($r=.72$).

Differences in behavioural problems according to the level of emotion regulation

The results of a Mann-Whitney U test showed that there was a significant difference in the expression of all observed behavioural problems depending on the level of a child's emotion regulation skills (Table 3).

A Mann-Whitney U test indicated a statistically significant difference in *internalized symptoms* depending on the level of emotion regulation ($U=1066.000$, $p=.000$), with the higher mean rank of internalized symptoms for children with lower levels of emotion regulation. Mann-Whitney U test pointed to a statistically significant difference in *inattention* ($U=1360.000$, $p=.000$), with a mean rank of inattention at 124.98 for children with lower levels of emotion regulation and 60.61 for those with higher levels of emotion regulation. In the case of *hyperactive-impulsive behaviour*, there was a statistically significant difference in this behaviour depending on the level of emotion regulation: higher mean rank was found for children with lower levels of emotion regulation. Regarding the *peer problems*, Mann-Whitney U test showed a statistically significant difference among children depending on the level of emotion regulation, with a mean rank of 109.61 for children with lower levels of emotion regulation and 75.56 for those with higher levels of emotion regulation. The same trend was present in the case of *oppositional aggressive* behaviour. Finally, Mann-Whitney U test presented statistically significant difference in *conduct problems* depending on the level of emotion regulation, $U=2097.500$, $p=.000$, with a mean rank of this behaviour 117.38 for children with lower levels of emotion regulation and 68.81 for those with higher levels of emotion regulation.

If we look into the effect sizes, Cohen's d values were large ($d>0.8$) in case of all observed behaviours, with the lowest value of $d=0.66$ for peer problems.

TABLE 3 Differences in behavioural problems according to the level of emotion regulation

<i>BEHAVIOURAL PROBLEMS</i>	<i>EMOTION REGULATION</i>	<i>N</i>	<i>MEAN RANK</i>	<i>MANN-WHITNEY U</i>	<i>p</i>	<i>d</i>
<i>Internalized symptoms</i>	<i>lower</i>	98	127.62	1066.000	.000**	1.71
	<i>higher</i>	89	58.31			
<i>Inattention</i>	<i>lower</i>	97	124.98	1360.000	.000**	1.47
	<i>higher</i>	90	60.61			
<i>Hyperactive-impulsive behaviour</i>	<i>lower</i>	98	124.99	1422.000	.000**	1.44
	<i>higher</i>	90	61.30			
<i>Peer problems</i>	<i>lower</i>	98	109.61	2733.000	.000**	0.66
	<i>higher</i>	88	75.56			
<i>Oppositional aggressive behaviour</i>	<i>lower</i>	98	126.41	1185.000	.000**	1.61
	<i>higher</i>	89	58.31			
<i>Conduct problems</i>	<i>lower</i>	97	117.38	2097.500	.000**	1.00
	<i>higher</i>	90	68.81			

Note. ** $p \leq .01$

Discussion and conclusions

One of the aims of this study was to determine gender differences in emotion regulation and some internalized and externalized behavioural problems of school-age children.

No difference was found among boys and girls with regards to emotion regulation. As it was stated previously, not many studies focused on school-age children emotion regulation. In a study with preschool and school-age children Bowie (2010) did not find a moderating effect of gender in emotion regulation and internalized problems relationship. When it comes to gender differences in behavioural problems, this study shows that based on teachers' observations, boys tend to express more problems with attention and more hyperactive-impulsive behaviour than girls. It has been widely reported that boys have higher levels of inattention as rated by teachers and parents (Fernandez, Tann-Mansukhani, & Essau, 2017). However, conclusions regarding gender differences in symptoms of inattention are somewhat equivocal, depending on the sample (Biederman et al., 2005). In our study, gender differences are not confirmed in case of internalized symptoms, peer problems, oppositional aggressive behaviour nor conduct problems. In a study with school-age children, Hayes (2007) found that boys had almost twice the difficulty with conduct problems than girls, and that they were also more likely to experience difficulties with prosocial behaviour and peers. Eisenberg, Hernandez and Spinrad (2017) argue that age is a very important factor that may affect the strength of relationships, meaning that expected gender differences are seen later on during preadolescence and youth periods. Also, it is possible that our findings are influenced by the fact that teachers are informants. We assume that they are more focused on learning behaviours and school adjustment since their children had just commenced their schooling.

The second aim of this study was to assess correlations between emotion regulation and observed internalized and externalized behavioural problems. We found a statistically significant negative correlation between emotion regulation and all observed behavioural problems. The strongest negative correlations were for emotion regulation and oppositional aggressive behaviour, internalized symptoms, inattention, and hyperactive-impulsive behaviour. Weaker, but still significant negative correlations existed between emotion regulation and conduct problems, as well as emotion regulation and peer problems.

This study's final aim was to examine the relations between different levels of emotion regulation (lower and higher) and observed internalized and externalized behavioural problems. When we looked into differences in expression of all observed behavioural problems depending on the level of a child's emotion regulation (lower or higher), we found that children with lower levels of emotion regulation expressed greater symptoms

of behavioural problems. Children whose emotion regulation was estimated as more developed were recognized as those who express significantly fewer symptoms of behavioural problems including internalized symptoms, inattention, hyperactive-impulsive behaviour, peer problems, oppositional aggressive behaviour, and conduct problems. That is in line with many earlier studies which found that the lack of emotional competencies, in general, is associated with both internalized and externalized behaviour problems and peer rejection (Eisenberg, Hernandez, & Spinrad, 2017; Fine, Izard, Mostow, Trentacosta, & Ackerman, 2003; King, Lengua, & Monahan, 2013; Schultz, Izard, & Ackerman, 2000; Schultz, Izard, Ackerman, & Youngstrom, 2001). High negative emotionality and low regulation have been associated with externalized problems (aggression, norm violations, and hyperactivity) in longitudinal analyses (Eisenberg, Hernandez, & Spinrad, 2017; Nelson, Martin, Hodge, Havill, & Kamphaus, 1999), and relations have also been found with internalized problems (Eisenberg et al., 2001; King, Lengua, & Monahan, 2013; Nelson et al., 1999). The ability to explicitly modulate emotion has been negatively related to externalizing problems, both early in life (Hill et al., 2006) and in the early school years (Rydell, Berlin, & Bohlin, 2003). This research has confirmed that emotion regulation has an important role in understanding behavioural problems as well as in their prevention.

Importance of social-emotional learning in schools

Our data suggest that more developed emotion regulation could serve as a buffer for behavioural problems, including internalized and externalized symptoms. Since study presented in this paper is part of a wider study examining the effectiveness of PATHS program (Kusché & Greenberg, 1994) in Croatian and European context, these findings support the implementation of social-emotional learning (SEL) in school setting.

SEL interventions such as PATHS support emotion regulation development within a classroom: buffering risks and offering caring and promotive context. If programs such as PATHS can be effective in improving emotion regulation, emotion education should be incorporated into education systems. There are other reasons for SEL interventions within a school context. For example, Phye, Schutz and Pekrun (2011) emphasize that emotions are intimately involved in virtually every aspect of the teaching and learning process while Duckworth and Carlson (2013) in their review show that emotion regulation is a driver in student success, enhancing effortful and goal-oriented perseverance on tasks. It is shown that negative emotions can reduce working memory, the memory system used for holding and manipulating information while various mental tasks are being carried out (Linnenbrink & Pintrich, 2000). At the same time tasks that load working memory can clear the mind of negative feelings (Van Dillen & Koole, 2007). Positive emotion can broaden thought-action repertoires (Phye, Schutz, & Pekrun, 2011), suggesting that students and teachers who experience positive emotions

more frequently may generate more ideas and strategies. Emotions can have an impact on different cognitive, regulatory and thinking strategies. For example, negative emotions lessen the probability that students will use cognitive strategies for deeper, more elaborate processing of information (Linnenbrink & Pintrich, 2000). During the preschool and early school years, the emergence of emotion regulation is important to create and maintain positive relationships with peers and teachers, for academic achievement, and school adjustment (Denham et al., 2003; Schelble, Franks, & Miller, 2010).

Since our data suggest that better emotion regulation is related to fewer behavioural problems, managing problems seems vital. Even if not in a fully positive manner, children should learn to express their emotions and have the opportunity to learn how to beneficially handle them. Promoting competencies, self-regulation skills, cognitive skills and interpersonal skills has to come before the reduction of problem behaviour (Bierman, Mathis, & Domitrovich, 2018; Eisenberg, Hernandez, & Spinrad, 2017). Programs that enhance relationship building, teach children about emotions and coping styles, as well as include activities in problem-solving, have to be part of an everyday curriculum. Teachers should be supported by classroom management strategies that foster relationships, especially friendship skills and cooperation. Parents should be involved and trained to support children's healthy emotional development and to properly respond to each temperament style.

As Dusenbury and Weissberg (2017) stress, the goal of education should be to help every child reach his or her own full potential and teach students how to interact well with others. Research over the past two decades has provided substantial evidence on how to create effective educational approaches, programs, and practices to support students' SEL. Research findings and policy developments support the following recommendations according to Dusenbury and Weissberg (2017): (1) adopt evidence-based SEL programs and activities in order to improve social, emotional, and academic success, (2) provide teachers and administrators with ongoing professional development and coaching to ensure high-quality implementation, (3) support and reinforce student SEL school-wide as well as in family and community partnerships, (4) create state, district, and school policies and guidelines to help ensure that learning goals for SEL are well-developed and aligned with elementary education.

Study limitations

The present study had several limitations. The most significant limitation of this study was that all outcomes were based on teacher reports. It would have been preferable if we had had additional sources of information about children's functioning like self-

report measures, peer reports, parents' or independent observers' observations. Bowie (2010) states that information obtained directly from the child is more accurate since the child is more aware of his or her own emotional state. Also, multiple observations during a certain period of time would give more accurate information on child's behaviour. It is important to stress that child's current contextual conditions (e.g. family conflicts or stress) could have affected their behaviour significantly so collecting additional information on their environment would have also provided more accurate understanding of behaviour. Finally, there is a lack of comprehensive and well-validated measures of young children's emotion regulation. For that reason, we were limited in defining the norms for specific behaviour. These limitations should be addressed in future research.

Future research recommendations

Regarding future research, it has to be noted that a child's emotion regulation occurs as a style, and good measures should include specific behavioural techniques providing an integrated picture of the child's affect regulation. Quality of coping style and its specifics should be also covered since a great amount of studies suggest the moderation role of emotional coping in the relationship of temperament and social competence (for example, Blair et al., 2004). In addition, Callear, Harvey, Bimler and Catto (2018) criticise the focus on cognitive strategies and lower-order problem-solving. They have studied core emotional behavioural clusters and styles seen by parents. Authors emphasise that measures should include not only the downregulation of unpleasant emotions but also the upregulation of positive effects. Use of other informants is effective if an observable behaviour is being reported, possibly alongside with self-report. Emotion regulation behaviour should also be studied together with temperament to understand the success in social interactions. Zarolia et al. (2015) suggest that future research should comment on the importance of flexible matching of regulation strategy, context, timing and emotion, especially in the case of internalized problems. Sometimes, decreasing negative and increasing positive effects is not the only goal. For example, anhedonic emotion regulation can be very useful when seeking help and preparing for a fight and is more effective and congruent with context than pursuing positive effect.

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