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Emotion Regulation in Children and Adolescents: concepts, processes and influences

Regulación emocional en niños y adolescentes: conceptos, procesos e influencias

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Abstract

This article provides an updated overview about the studies on emotion regulation in children and adolescents from the perspective of developmental psychology. It is mainly based on articles published in indexed psychology journals between the years 2001 and 2016. Conceptual aspects of the definition of emotional regulation are discussed, followed by an examination of neurobiological and environmental influences that impact the regulation of emotion during infancy and adolescence. Finally, characteristics of the development of the regulatory processes are analyzed from infancy to late adolescence, emphasizing the vital regulatory scopes for each period. The ultimate goal of this paper is to provide a documented basis for the study of emotion regulation in Colombian children and adolescents, a neglected population in regards to this topic.

Keywords: Emotion regulation, Emotion development, Child development, Children, Adolescents.

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Resumen

El presente artículo ofrece un panorama actualizado de lo que ha constituido el estudio de la regulación emocional en la infancia y la adolescencia desde la perspectiva de la psicología del desarrollo. El documento se basa principalmente en la revisión de publicaciones de revistas indexadas entre los años 2001 y 2016. En primer lugar, se discuten los aspectos conceptuales de la definición de regulación emocional, luego se examinan influencias neurobiológicas y ambientales sobre los mecanismos regulatorios para finalmente analizar las características del desarrollo de los procesos de regulación emocional desde la infancia temprana hasta el final de la adolescencia, enfatizando en los alcances para cada período vital. El objetivo último de esta revisión es proporcionar un fundamento teórico sólido para el estudio de la regulación emocional en niños y adolescentes colombianos, una población que aun no ha sido objeto de investigación en cuanto a este tema.
Palabras clave: Regulación emocional, Desarrollo emocional, Desarrollo infantil, Niños, Adolescentes.

INTRODUCTION

The study of emotional regulation (ER) is a subject of great interest in the academic field of behavioral cognitive psychology. An initial exploration of scientific papers carried out using the database PROQUEST revealed that the number of research projects that responded to the search criteria "Emotional Regulation" was of 43,063 in January 2016, with 96% of those articles published in the last 15 years. This work revises only articles supported by evidence-based data, published in indexed journals in the field of child development (social development, emotions development, behavior development, cognitive development, psychology development), and in journals and bulletins related to parenting, family, neuroscience, pediatric and children and adolescents' health. Journals related to psychopatology, abnormal development and articles focusing on clinical cases were excluded. The findings of extensive research work have shown how the children's ability to manage their emotions in appropriate ways is a condition that guarantees success in the children´s interpersonal relationships, in coping with problematic situations, in reaching their goals and in general in every child´s psychological adjustment (Cole, Martin & Dennis, 2004; Eisenberg & Spinrad, 2004; Eisenberg, Michalik, Spinrad, Hofer, Kupfer, Valiente, & Reiser, 2007; Spinrad, Eisenberg, Cumberland, Fabes, Valiente, Shepard, & Guthrie, 2006).

There is a scientific consensus that the skills for managing emotions allow children and adolescents to inhibit inappropriate impulses, to direct their behavior constructively, to explore and adapt to new environments, people and objects, and to be better accepted by their peers (e.g., Eisenberg, Gershoff, Fabes, Shepard, Cumberland, Losoya, & Murphy, 2001; Eisenberg, 2002; Eisenberg, Valiente, Morris, Fabes, Cumberland, Reiser, & Losoya, 2003; Eisenberg et al., 2007). In contrast, a large number of longitudinal studies have revealed how the deregulated expression of affections during childhood and adolescence is a problem for the psychological and social adjustment of individuals in short and long term. Especially the plight of some children to tolerate and to manage their negative emotions, to control impulses and to address changes are

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elements that have been found to be related to the development of various forms of psychopathology in youth such as anxiety disorders, depression, suicidal ideation, suicide and violent behavior (eg, Bender, Reinholdt-Dunne, Esbjörn, & Pons, 2012;. Cole, Dennis, Smith-Simon, & Cohen, 2009; Jacobson, Marrocco, Kleinman, & Gould, 2011; Kliewer, Cunningham, Diehl, Parrish Walker, Atiyeh, & Mejia, 2004; Neumann, Van Lier, Frijns, Meeus,, & Koot, 2011; Pisani, Wyman, Petrova, Schmeelk-Cone, Goldston, Xia, & Gould, 2013; Silk, Steinberg, & Morris, 2003).

In spite of these significant findings, the scientific work in Colombia and in South America regarding ER is very limited and rather insufficient. Authors on developmental psychology are not addressing the importance of investigating the development of emotion regulation in childhood and adolescence. Specifically in Colombia, a country in a post-conflict era with very high rates of violence involving young population as perpetrators and victims, there is a great need to broaden the understanding of emotion regulation processes and of those factors that influence the acquisitions of abilities for managing emotions in healthy and socially constructive ways. This article seeks to highlight the importance of the study of ER in childhood and adolescence, while providing a basis for future research efforts that might address these voids of knowledge in different cultural settings.

The following sections detail the phenomenon of ER in childhood and adolescence. First of all, conceptual aspects of the construct are presented: a definition of ER is offered along with the description of its constituent elements and the internal and external mechanisms by which individuals manage to modulate their emotions. Secondly, neurobiological and environmental factors affecting the development of strategies for managing emotions are discussed. Finally, the emotional regulatory processes of children and adolescents are analyzed from early childhood to the end of adolescence, emphasizing the specific scopes for each vital period.

CONCEPTUAL ASPECTS FOR THE REGULATION OF EMOTION

One of the first conceptualizations offered for the construct of Emotional Regulation (ER) defines it as "a series of processes intrinsic and extrinsic responsible for monitoring, evaluating and modifying emotional reactions, especially in its temporal elements and intensity for achieving personal goals" (Thompson, 1994, pp. 27-28). Even today this definition remains as the preferred by researchers in the field, and as of January 2016 it had received 2,082 citations in scientific papers. As studies continued on the subject of managing emotions during childhood and adolescence, several authors, such as Campos, Frankel, and Camras (2004), Cole et al., (2004), Cole (2014), Compas, Connor-Smith, Saltzman, Thomsen, and Wadsworth (2001), Eisenberg and Morris (2002), Eisenberg and Spinrad (2004), Goldsmith and Davidson (2004), Waters and Thompson (2014), and also Zeman, Cassano, Perry-Parrish, and Stegall (2006) have been reviewing and complementing the definition, but always keeping the notion of ER proposed by Thompson (1994) as a guide and starting point for their research. Currently, ER is understood as a series of internal and external, conscious and unconscious, voluntary and involuntary processes, responsible for evaluating and modifying emotional responses in their physiological, cognitive and behavioral

component processes, always with the goal of achieving personal goals and fulfilling social acceptance (Cole et al., 2004; Compas et al., 2001; Eisenberg & Morris, 2002; Eisenberg & Spinrad, 2004; Thompson, 1994, 2011; Waters & Thompson, 2014).

In general, all the phenomenon conceptualizations incorporate multiple levels of processes that are synchronized to handle an emotion, including physiological components (shifts in duration and intensity of emotional states), cognitive components (attentional, mental processes to evaluate situations) and changes in behavior through which emotions are expressed. Similarly, every conceptualization of ER establishes a functional role in the dynamic of the modulation of emotions. These processes are designated as functional since they always respond to specific ambitions of a person and their ultimate goal is to facilitate the achievement of her purposes but in a culturally appropriate manner (e.g., Campos et al. , 2004; Cole, 2014; Compas et al., 2001; Eisenberg & Morris, 2002; Eisenberg & Spinrad, 2004; Goldsmith & Davidson, 2004; Gross & Thompson, 2007; Lewis & Stieben, 2004; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Ochsner & Gross, 2005; Thompson, 1994, 2011; Waters & Thompson 2014; Zeman et al., 2006).

INFLUENCES IN THE DEVELOPMENT OF EMOTIONAL REGULATION

During childhood and adolescence, the acquisition of skills for modulating emotional responses is closely related to the maturation of neurophysiological systems and biological structures that allow individuals to achieve different levels of organization in physiological dimensions, cognitive and behavioral. Similarly, certain features of the context in which individuals develop often promote or hinder the skills with which every child and adolescent learns to express emotions (Campos et al. , 2004; Cole, 2014; Goldsmith & Davidson 2004; Lewis & Stieben, 2004; Luna, Padmanabhan, & O'Hearn, 2010; Steinberg, 2005; Thompson & Goodvin, 2007; Thompson, Lewis, & Calkins, 2008; Thompson & Goodman, 2010; Thompson 2011; Zeman et al., 2006).

Neurobiological Influence. At the biological level, ER exists for the main purpose of physiologically stabilizing the body after internal arousal caused by emotions (Thompson 1994; Thompson et al., 2008; Lewis, Todd, & Honsberger, 2007). ER is achieved through the synchronization of different systems including: attentional processes to selectively focus on important environmental stimuli, cognitive processes to assess situations, and motor processes for preparing the body for action. Such regulatory processes do not occur in a specific time or in a distinct temporal sequence, but are activated simultaneously, and spontaneously organize themselves to integrate perceptions, assessments and coordinate motor aspects that will deal with a particular situation (Lewis & Stieben, 2004; Lewis et al., 2006).

During complex tasks, humans experience a great deal of emotional variability that triggers the internal arousal of the body: difficulties such as breathing, focusing attention, and motor coordination, irregularities in heart rhythm, and so on. Under such circumstances, finding socially appropriate responses can be complicated. Only the maturation of the nervous system will allow children and adults to exert control over their behavior when the homeostatic needs of the organism are demanding (Thompson, 1994;

Thompson et al., 2008). Thanks to advances in neuroimaging, scientists have been able to demonstrate how blood flows in distinctive circuits throughout the brain when the individual is confronted with emotional related tasks. The images show a path clearly ranging from the brainstem to the cortex (Lewis & Stieben, 2004; Lewis, Lamm, Segalowitz, Stieben, & Zelazo; 2006; Luna et al., 2010; Thompson, 1994; Steinberg, 2005). When emotions are activated, the brain stem, the limbic system and the cortex are in constant interaction integrating perceptions, making interpretations of events and organizing responses:

- The brain stem: This structure is responsible for regulating basic functions such as breathing, sleeping, maintaining heart rate and consciousness. The brain stem connects the brain with the rest of the body, conducting motor and sensory impulses. In the regulation of emotions, it plays a key role commanding behavior and integrating different sensations related to temperature, pain, and itch, among others (Lewis, 2000; Lewis & Todd, 2007).

- The limbic system (hippocampus and amygdala): This system regulates perception, memory, learning and emotional processes. This system allows the individual to build inner meaning from everyday experience and it also plays a key role in the selection of coping strategies under stressful situations. The maturation of the connective path between the hippocampus and the amygdala facilitates coordination between cognitions and emotions, but if there is hyperactivity in the connections in this area, children become negatively hyper-stimulated and are likely to interpret as threatening stimuli that actually are not. As a result, the child's body does not start inhibitory functions to regulate stress or to decrease the intensity of the emotional states, and rather acts aggressively or impulsively. This could be the reason for the emotional maladjustment of many children (Thompson et al., 2008; Thompson, Virmani, Waters, Raikes, & Meyer, 2013).

- The cerebral cortex: This structure is associated to the control of high order mental processes such as attention, memory and voluntary control. As for ER processes, the prefrontal cortex is responsible for implementing mechanisms for the inhibition of impulsive behavior, for modulating the intensity and duration of negative emotions and for the selection coping strategies like cognitive reappraisal of the situation, the consideration of different points of view, among others (Lewis & Stieben, 2004; Ochsner & Gross, 2005; Ochsner, Ray, Cooper, Robertson, Chopra, Gabrieli, & Gross, 2004; Zelazo & Cunningham, 2007). Researchers in this field have managed to locate the full maturation of these neurobiological systems towards the end of adolescence. Researchers also explain that it is near the end of adolescence that, even under highly emotional arousal, individuals successfully demonstrate sophisticated self-regulation skills that enable them to control impulses and cope with stressors in a socially adequate manner (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011; Guyer, Caouette, Lee, & Ruiz, 2014; Lewis et al., 2006; Luna et al., 2010; Ochsner & Gross, 2005; Steinberg, 2008; Thompson, 2011; Zimmermann & Iwanski, 2014).

Environmental Influence. Studies on ER during infancy and adolescence emphasize the great influence of the sociocultural context and especially the family environment as key factors

in the development of ER skills (Campos et al., 2004; Cole, 2014; Goldsmith & Davidson, 2004; Thompson, 2011; Thompson et al., 2013; Zeman et al., 2006).

A large number of studies has found that some contextual factors such as poverty and violence have a direct negative impact on the physical and emotional development of individuals. Children growing up in poverty are less successful in school, have more learning difficulties, increased nutritional deficiencies and present health issues more often than children who are not economically disadvantaged (e.g., Blair, 2010; Blair & Raver, 2012; Duncan, Ziol-Guest, & Kalil, 2010; Holzer, Whitmore Schanzenbach, Duncan, & Ludwig, , 2010; Grant, Compas, Stuhlmacher, Thurm, McMahon, & Halpert 2003; Gross & Thompson, 2007; Wadsworth & Berger, 2006; Wadsworth & Compas, 2002).

Along with poverty, an important body of research also points to the conflicting family environments and community environments with high levels of violence as major obstacles to the development of ER skills in children (e.g., Amone-P'Olak, Garnefski, & Kraaij, 2006; Brook, Brook & Whiteman, 2007; Buckner, Mezzacappa, & Beardslee, 2003; Cole, 2014; Kliewer, Murrelle, Mejia, & Angold, 2001; Mejia, Kliewer, & Williams, 2006; Raver, 2004, Wadsworth & Berger, 2006; Wadsworth & Compas, 2002). Children who grow up in environments of poverty and violence find fewer opportunities for social, educational and personal development: they are more likely to become victims of street violence, to experience greater residential instability, domestic violence, drug abuse, fewer educational opportunities and they are permanently exposed to negative life models (e.g., Buckner et al., 2003; Raver, 2004; Wadsworth & Berger, 2006; Wadsworth & Compas, 2002). Children and adolescents living under circumstances like these have limited possibilities of acquiring a rich variety of ER skills; instead they grow up showing deficits in the recognition, expression and understanding of their own emotions and others´ (Raver, 2004; Wadsworth & Compas, 2002). Children and adolescents growing up under vulnerable circumstances are at risk of having difficulty regulating their impulses, maintaining problematic interpersonal relationships, and developing emotional and behavioral disorders in the long term (e.g., Congers & Congers 2002; Eisenberg et al., 2001; Kim & Cicchetti, 2010; Mejia et al., 2006; Raver, 2004, Wadsworth & Compas, 2002).

In contrast, research has shown that families with warm emotional environments reinforce the proper expression of affection and model assertive emotional coping skills in children and adolescents. Similarly, the availability of the environment to provide early professional intervention to emotional and behavioral difficulties has a great impact on the capacity of children to learn to manage their impulses and emotions. Family support and safe social environments work as factors that protect against the onset of psychopathology and ensure the emotional adjustment of children and adolescents in the long term, even in the eventuality of adverse circumstances (Amone-P'Olak et al., 2007; Cui, Morris, Criss, Houltberg, & Silk, 2014; Kim & Cicchetti, 2010; Kliewer et al., 2001; Kliewer et al., 2004; Raver, 2004, Wadsworth & Compas, 2002).

Development of Regulatory Processes

Human beings learn to regulate their emotions in a gradual and continuous progress that starts at birth with a total dependence on caregivers

for emotional management until adulthood when the individuals gain independence and responsibility in their own processes of emotional management (eg, Cole et al., 2004; Eisenberg & Morris, 2002; Gross & Thompson, 2007; Kopp & Neufeld, 2003; Thompson & Goodman, 2010; Zeman et al., 2006). During childhood (ages 1-10) and adolescence (ages 11-19) there are several milestones at certain ages that are relevant to be discussed.

1-3 years. At the beginning of life, emotional regulatory processes are mostly external. In children aged 1 to 3 years, the regulation of emotions is achieved through the efforts of third parties rather than the child's desires to suit her responses to the cultural demands of situations. At this stage parents and caregivers are directly involved in the modulation of emotional responses of children. Mainly during the first year of life, parents are responsible for identifying and continuously monitoring the emotional needs of the baby, soothing her states of stress, maintaining stable routines and offering help in difficult situations, among others (e.g., Cole et al., 2004; Cole, 2014; Morris et al., 2007; Thompson, 1994, 2011; Thompson & Meyer, 2007; Zeman et al., 2006). During the second year of age, language development is presented as a tool that allows the child to name internal states, to request help from others, and to modify her environment at will (e.g., Pons, Harris, & Rosnay, 2004; Raikes & Thompson, 2008; Thompson & Lagattuta, 2006; Waters, Virmani, Thompson, Meyer, Raikes, & Jochem, 2010). Around this same period there are important advances in the development of awareness of others and from this point emotions begin to have a social dimension. The child experiences new emotions as pride and shame in circumstances involving interaction with significant others, from these new emotional sensations children learn to guide their behavior towards social acceptance (Thompson, 2011). At 3 years of age, there is a significant learning of self-regulation based on the recognition of basic emotions of others. At this age, children can easily identify emotional states of happiness, sadness, fear and anger in the people around them, and this allows them to respond empathetically and to regulate their behavior accordingly (Pons et al., 2004; Thompson, 2011).

4-6 years. Between 4 and 6 years old children begin to understand new dimensions in their emotional world: internal experiences like memories, fears and wishes. At these ages, children are able to establish differences between real emotional experiences like memories and virtual experiences like desires and expectations (Dennis & Kelemen, 2009; Pons et al., 2004; Thompson & Lagattuta, 2006; Thompson, 2011). This information about their emotions (real or virtual) allows six-year-old children to be fully aware that they can deal with negative emotions like sadness and fear by using certain types of distraction strategies like playing, singing and drawing, among others. They also realize that deregulated expression of emotion like weeping, wailing and shouting will not help them feel better, therefore, they will opt with less frequency for this sort of responses (Dennis & Kelemen, 2009).

7-8 years. At around ages 7 and 8, a major change occurs at a cognitive level because children are able to think less egocentrically and that allows them to become aware that there are different points of view for every situation and understand that different events produce different emotional reactions in different people (Piaget, 1981; Pons et al., 2004). This new

cognitive ability makes it easier for children to realize that people do not always express all their emotions and so they are not obligated to do so. Children 7 and 8 years old recognize that in certain situations it is more convenient to hide their feelings and they are capable of managing their emotions to the point of expressing a different emotion than the one they actually feel (Pons et al., 2004). Faced with a problem situation, children in this age range, turn to strategies based on social support of parents, friends and teachers when they feel nervous and worried. When experiencing anger or when they feel attacked by their peers, children are able to verbalize their anger and to use verbal strategies to favor conciliation before turning to physical aggression toward others. This intentional selection of some coping strategies over others reveals well-developed abilities on self-regulation of emotion (Cole et al., 2009; Denham, Bassett, & Wyatt, 2007; Dennis & Kelemen, 2009; Meyer, Raikes, Virmani, Waters, & Thompson, 2014; Morris, Silk, Morris, Steinberg, Aucoin, & Keyes, 2011; Thompson & Goodman, 2010; Waters & Thompson, 2014).

9-10 years. An important indicator of emotional development at the end of childhood is exhibiting emotion regulation responses and behaviors in socially appropriate ways (Morris et al., 2007; Denham et al., 2007; Eisenberg & Spinrad, 2004; Eisenberg & Morris, 2002; Eisenberg et al., 2007; Valiente, Eisenberg, Smith, Reiser, Fabes, Losoya, & Murphy, 2003). Nine-year-old children have realized that positive emotions, such as joy, are well received in social settings while negative emotions such as anger and sadness are associated with shameful behaviors that are required to be kept under control (Pons et al., 2004). At the end of childhood, ER processes are also influenced by cultural expectations (Pons et al., 2004; Raikes & Thompson, 2008; Thompson & Lagattuta, 2006; Waters et al., 2010).

At age 10, the ER process changes from external to internal. Children use cognitive strategies involving thinking for modifying their feelings like reappraisal, reassessing situations, changing their points of view (Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Gross & Thompson, 2007; Zeman et al., 2006). Research has found that when experiencing negative events, 10-year-old children are able to manage their emotions, assess the needs of the situation, and use coping strategies in a culturally appropriate way without adult intervention. The emotional responses of preteens include mainly blaming others, blaming themselves, mental rumination and catastrophic thoughts. The coping strategies most commonly used are reappraisal, acceptance of the situation, planning and distraction (Garnefski et al., 2007).

11-13 years. The time gap between 11 and 13 years of age is considered critical for the development of ER skills. Research in this field has registered how young adolescents spend lots of their time thinking about how they are perceived by others and concerned about their status in their social group (Chein et al., 2011; Brodbeck, Bachmann, Croudace, & Brown, 2013; Brodbeck et al., 2013; Silk et al., 2003; Steinberg, 2008; Zeman et al., 2006). It is also well documented how social circumstances, specifically the presence of peers, place high levels of stress and highly emotional arousal among young adolescents, and situations that expose them to the possibility of being negatively evaluated by their peers cause a considerable decrease in their self-regulatory capacity, lower assertiveness and limited decision-making strategies (Garnefski & Kraaij, 2006; Guyer et

al., 2014; Silvers McRae, Gabrieli, Gross, Remy, & Ochsner, 2012; Steinberg, 2008; Thompson et al., 2013; Van der Graaff, Branje, De Wied, Hawk, Van Lier, & Meeus, 2014; Zeman et al., 2006). Recent neuroimaging studies in adolescents between 11 and 19 years of age have confirmed that, when observed by peers, young adolescents show a weaker activation of brain areas associated with cognitive control and instead show higher neuronal activity in regions associated with rewards, which explains the youngsters' need to actively seek acceptance of their social group (Brodbeck et al., 2013; Chein et al., 2011; Guyer et al., 2014; Steinberg, 2008). The phenomenon of regulatory difficulty before social stimuli has also proved to be associated with a higher occurrence in risk behaviors such as substance use, and risky sex behaviors, among others (Brodbeck et al., 2013; Chein et al., 2011; Guyer et al., 2014; Steinberg, 2008).

14-16 years. Towards the age of 14, the adolescent reaches a prominent development of formal logic. The thinking process presents hypothetical and abstract qualities, which allow teenagers to perform abstract reasoning. At a social and emotional level, the hypothetical reasoning grants the individual with access to others' points of view, and allows the adolescents to consider the position of others and to take into account the consequences of own actions when making decisions (Piaget, 1970). In this sense, a regulatory conquest between ages 14 and 16 is the refinement of various cognitive strategies such as perspective taking and empathetic concern, which involve the regulation of behavior taking into account the position and interests of others involved and consideration of long-term goals (Garnefski & Kraaij, 2006; Silvers et al., 2012; Zeman et al., 2006; Van der Graaff et al., 2014).

Another important milestone in regulatory capacities between 14 and 16 years of age is that gender differences regarding the regulation of emotions are consolidated. Studies have confirmed how women show higher levels of empathy, perspective taking and greater concern for the other than men in the same age range (Silvers et al., 2012; Van der Graaff et al., 2014). In contrast, men at age 15 exhibit a smaller ER strategies repertoire. During this period, it has been shown how men show a decrease in empathetic concern for others, reduced sensitivity to others' emotions, less seeking social support for the regulation of sadness and a greater tendency to inhibit emotional states of fear. Apparently, during this vital period, adolescent males reorganize their regulatory strategies for presentation to their social environment as if they were not affected by fear or sadness (Zimmermann & Iwanski, 2014). As an explanation of this phenomenon, several studies have suggested that during these ages gender identification processes are intensified. These processes cause more stereotyped cultural behaviors, in which girls are encouraged to show greater extent and frequency of emotions and behaviors of concern for others while men are suggested to inhibit all kinds of emotionality (Silvers et al., 2012; Van der Graaff et al., 2014. Zimmermann & Iwanski, 2014).

17-19 years. Between ages 17 and 19, the frequency and success in using ER strategies such as perspective taking, empathetic concern, and reassessment of the situation is similar to that of adults (Garnefski & Kraaij, 2006; Guyer et al., 2014; Silvers et al., 2012; Van der Graaff et al., 2014). Age 19 marks the end of adolescence; neurophysiological and biological systems reach maturity, allowing individuals to have greater levels of organization and control in physio-

logical, cognitive and behavioral dimensions. Early adulthood is associated with a better ability to respond to peer pressure and with a significant acquisition of more responsible and moderate behavior (Lewis et al., 2006; Silk et al., 2003; Silvers et al., 2012; Steinberg, 2005; Thompson, 2011).

CONCLUSIONS

The past 15 years of research in the emotional development field have yielded important findings about how individuals gradually become skilled at modulating their impulses and managing their emotions in a continuum that goes from birth to adulthood. Research has also shed light on the neurobiological and environmental elements that influence the acquisition of abilities for managing emotions, sometimes by protecting or sometimes by hindering the development of strategies for coping with stressors in constructive ways.

Advances in neuroscience have contributed to the discussion by locating the source of ER processes very early in life, determined by the maturation of brain structures and biological systems that enable the emotional responses of children with different levels of organization in physiological, cognitive and behavioral dimensions as they grow up. Research in this area has supported exploration of the emotional regulatory scopes of children at different ages, and has also helped to locate maturation of these neurobiological systems by the end of adolescence.

Nevertheless, similarly very rigorous longitudinal and cross-sectional studies have concluded that the characteristics of the family, the social, the economic and the cultural circumstances in which children and adolescents are immersed have the greatest impact on the strategies that they develop for regulating their emotions. Among the protective factors that enable the learning of assertive emotional coping skills, it is known that a warm family environment and stable and safe social surroundings ensure the emotional adjustment of children and adolescents in the long term. On the contrary, most contexts of extreme poverty, war and/or violence in the community and in the family, do not offer children appropriate models of strategies for dealing with critical situations and instead make children vulnerable to developing maladaptive patterns of emotional expression and even place them at risk of psychopathology.

In the emotion development field, there is a great body of research documenting the emotional regulatory scopes and paces during childhood. There is a scientific consensus that with age individuals become better at controlling their emotions and at managing their impulses in socially appropriate ways. At the beginning of life, children do not control their emotional responses and therefore depend on others (parents and caregivers) for the fulfillment of their physical and emotional needs. Around ages 2 and 3, language development is a tool that allows children to communicate their internal experiences and to understand emotion behavior of others. At age 4, children are capable of managing their emotions making use of different strategies that most of all involve distraction, blaming others, and seeking support from an adult, among others. Towards age 8, children can successfully use logic reasoning and strategies of verbal reconciliation to solve their problems rather than acting impulsively and be deregulated. By the end of childhood, at ages 9 and 10, children already have the ability to adapt their responses according to circumstances to show only those emotions

that are well received in social environments and keeping under control those affections that are morally reprehensible (envy, anger, and sadness, among others).

In spite of the great deal of literature concerning the acquisition of emotional skills during childhood, there are considerably less studies that analyze these regulatory processes during the adolescence period. It is known that during adolescence, emotion regulation continues to be a socially influenced phenomenon. Adolescents organize their emotional behavior according to the expectations of their peers and significant others, as they refine cognitive abilities such as hypothetical thinking, cognitive reappraisal, perspective taking and empathetic concern, abilities that they use for regulating their emotional responses. By the end of adolescence, at ages 17-19, adolescents exhibit a stable level of emotional organization and skills in regulating their emotions autonomously, using mostly thinking related strategies and behavior planning that is carried out taking into account consequences of their actions for others and in line with their long-term goals.

An important limitation for the scientific research of ER is that studies are conducted mostly in Western societies in developed countries (North America and Europe). There is a latent necessity for documenting the development of emotion regulation processes in children and adolescents living under different social and economic influences. This would be especially relevant for regions such as Colombia and other developing countries which have high rates of poverty and a history of war and armed conflicts targeting young population. Future studies in different cultural settings would shed light on how emotion regulation in childhood is affected not only by economic stress or by violence, but also by different social expectations regarding age, sex, family dynamics, academic level, among other elements. These studies would also allow for comparisons between the emotional management made by children in developed countries and those living in other cultures. Eventually, these efforts will translate into better design of plans for improving emotional coping skills for those children at risk.

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