# Emotion Regulation
## Concepts & Practice in Autism Spectrum Disorder

Carla A. Mazefsky, PhD[a,*], Susan W. White, PhD[b]

**KEYWORDS**

• Emotion regulation • Autism spectrum disorder • Therapy • Behavioral problems • Review

**KEY POINTS**

- Emotion regulation (ER) involves modulating the temporal features, intensity, or valence of one's emotions in the service of adaptive or goal-directed behavior.
- Disrupted ER may be inherent in autism spectrum disorder (ASD).
- Impaired ER may be a more parsimonious explanation than psychiatric comorbidity for severe behavioral disturbances observed in ASD.
- Few interventions have been developed to explicitly target ER processes in ASD.
- ER may be addressed (even if not labeled as such) in some existing psychosocial treatments used in ASD, including the provision of positive behavioral supports, enhancing emotional language, and modified cognitive–behavioral therapy.
- Areas of future need include the development and validation of measures to assess ER in ASD for treatment planning and evaluation purposes, as well as the development of interventions to promote ER that incorporate the unique characteristics of ASD.

## INTRODUCTION
### *Emotion Regulation Concepts*

Imagine that you are driving to work, and someone cuts you off. Your heart rate rapidly increases, and you experience a wave of intense irritation, yet you manage to blare on your horn, simultaneously hit your brakes, and remain focused on safely driving. You have just engaged in effective emotion regulation (ER), which broadly encompasses the processes related to modifying one' emotions to fit the context or meet one's goals[1,2] (in this case, staying safe). Although the distinction is widely debated,[3–5] emotion regulation differs from the experience of emotion itself, in that ER involves an attempt to modify the intensity or temporal features of an emotion (eg, after the

Funding: NICHD K23CHD060601 (C.A. Mazefsky); NIMH K01MH079945 (S.W. White).
Conflicts of Interest: None.
[a] Department of Psychiatry, University of Pittsburgh School of Medicine, University of Pittsburgh, 3811 O'Hara Street, Webster Hall, Suite 300, Pittsburgh, PA 15213, USA; [b] Department of Psychology, Virginia Tech, 109 Williams Hall (0436), Blacksburg, VA 24061-0100, USA
* Corresponding author.
*E-mail address:* mazefskyca@upmc.edu

Child Adolesc Psychiatric Clin N Am 23 (2014) 15–24
http://dx.doi.org/10.1016/j.chc.2013.07.002 **childpsych.theclinics.com**
1056-4993/14/$ – see front matter 

initial startle when you are cut off, you quickly experience anger when you see the driver texting [emotion], but, you attempt to keep the anger from escalating so that you can remain focused on safely driving [ER]). ER processes can occur at the unconscious level (without realizing you are doing so, you maintain a level of fear that will keep you alert but not unable to act) and at a conscious level (eg, telling yourself you are okay after the incident is over). Further, ER can be response-focused as in this example, or antecedent-focused (prior to the emotion).

Most people have a characteristic and fairly stable ER style. A person's customary ER style can be generally adaptive or maladaptive, with the latter often associated with psychopathology and less appropriate behavior. Disrupted, or maladaptive, ER has been implicated as a mechanism underlying various psychiatric disorders, including depressive[6,7] and anxiety[8] disorders and borderline personality disorder.[9] Thus, poor ER is a transdiagnostic process that plays a role in many disorders in producing inappropriate emotional and behavioral reactions. The mechanisms that give rise to emotional dysregulation and how ER manifests itself, however, are more disorder-specific.[9]

### *Role of ER in Autism Spectrum Disorder*

Although much less studied in autism spectrum disorder (ASD) than in other psychiatric disorders, disrupted ER is likely to be a significant factor in producing aberrant behavior in ASD as well.[10,11] One likely manifestation of ER failure in ASD is serious behavioral disturbance. Tantrums, uncontrolled outbursts, aggression, and self-injury are often interpreted as defiant or deliberate. Although this interpretation is likely accurate in some circumstances, it is more often the case that these inappropriate behavioral reactions stem from ineffective management of emotional states in response to stress or overstimulation.[12]

Absent or impaired ER may be a more parsimonious explanation of serious behavioral disturbance in ASD than psychiatric comorbidity. Psychiatric diagnoses are difficult to reliably make in ASD for a variety of reasons, including lack of measures validated for use with this population, difficulty assessing certain symptoms in nonverbal individuals, inadequate insight and poor temporal reporting, unique manifestations of distress in ASD, and the challenges involved in interpreting and differentiating symptoms that could be attributed to ASD or a secondary disorder (eg, lack of positive affect as part of ASD or because of depression).[13,14] For all of these reasons, there is growing concern that psychiatric diagnoses may be overused in ASD.[15] Many secondary psychiatric problems may be more accurately conceptualized as part of the ASD itself or may stem from a fundamental problem in ER.[10]

### *ASD-Related Factors that Impede Effective ER*

Many characteristics of ASD may interfere with effective ER (**Fig. 1**).[16] First, alexithymia, or difficulty identifying, distinguishing, and describing emotions, has been well documented in ASD.[17–19] Although not essential for all forms of ER, recognizing and understanding one's own emotions is necessary for effortful ER.[20] Labeling of one's emotion has been proposed as critical to successful ER,[21] and being able to communicate to others about one's emotional state is also involved in interpersonal ER aspects, such as joint problem solving or sharing of one's emotions. Given that language competence is associated with emotional competence in typical development,[22] it is also conceivable that the language and communication impairments common in ASD affect development or regulatory abilities.

As proposed by Samson, Huber, and Gross,[23] core deficits in theory of mind, or ability to take others' perspectives cognitively and effectively and to recognize one's own state of mind, may be related to poor ER. Some regulatory strategies