Emotional Regulation and Autism Spectrum Disorders

Lynda Geller, Ph.D.

Autism spectrum disorders (ASDs) have been conceived of as largely social disabilities, because social problems seem to be the most prominent common characteristic. But emotional dysregulation is also a key component in the difficulties both children and adults with ASD experience in education, employment, and relationships, and it has not been as well addressed. This article will examine what we know about how emotional regulation typically develops, and how the process may be compromised for individuals on the spectrum.

Beyond Feelings

Emotions are often thought to be only feeling states, but they are much more than that. Emotions also include physiological responses and expressions. They play a critical role in regulating important processes including memory, perception, attention, and physical response. Since the dawn of humankind they have played a crucial part in individual survival. Emotions also shape interpersonal interactions, providing information to and about others, and shape others' behaviors toward us. As such, emotions are a highly important part of social interaction.

Emotional regulation includes the processes whereby we influence which emotions we have; when we have them; and how we experience and express them. This regulation may include decreasing, maintaining, increasing, or substituting an emotion, and may occur before an emotional response is activated or during the experience itself. Key components are our cognitive appraisal of the situation; our physiologic reaction; our emotional expression; how we have been socialized; and our learned behavior from past experiences. The acquisition of all aspects of regulation results from the interplay between the development and unfolding of underlying brain mechanisms and the experiences we have from birth onward.

Emotional regulation includes the processes whereby we influence which emotions we have; when we have them; and how we experience and express them.

For those on the spectrum, the development of emotional regulation is often atypical. Biological differences in processing speed; incoordination of socially relevant motor actions (e.g. facial expressions); perceptive difficulty involving faces and nonverbal cues; and sensory overwhelm are common. Many are unable to recognize emotions in themselves or in others, or are unable to differentiate among emotions. For example, they may experience all negative emotions as fear. There are individual differences in arousal levels, as well, with those on the spectrum experiencing highly variable or overly sensitive arousal states. The uneven development across skills may result in significantly discrepant maturity levels in the same person. So, while development generally marches forward in a more or less predictable manner, emotional regulation for those on the spectrum may be delayed or altered by countless subtle constitutional differences.

What's Happening inside the Brain?

Physiologically, sensory information travels from the thalamus to either the amygdala or the frontal lobes. The amygdala lets loose the survival instinct of "fight or flight" and immediately activates the sympathetic nervous system to prepare the body to act. The frontal lobes, in contrast, bring experience and cognition to moderate the amygdala-driven responses. So while it might be advantageous to escape predators quickly through amygdala arousal, one would not want to be aroused to that level every time a noise, sight, or smell occurred, as happens frequently in individuals with ASD.

Developmentally, children learn to mediate their emotional arousal based on their experiences. As they reach adolescence, the frontal lobes, which house the executive function (EF) system, take on an increasingly larger role in mediating emotional responses. Hence, such brain functions as planning, inhibitory control, working memory, and attention all serve to exert greater cognitive control over emotional regulation. That said, the executive function system does not reach physical maturity until well into adulthood, and is often compromised in individuals with ASD.

The mediation of emotional arousal may be misdirected in individuals with ASD, because of their multiple neurobiological differences. For example, if a child too often experiences certain stimuli as overwhelming and the amygdala goes into action, this response may become neurologically entrenched and difficult to rewire. Subtle neurobiological differences may cause children to experience the world differently, which in turn leads to differently wired brains.

The stress-memory circuit, investigated in traumatized children, may have implications for individuals with ASD. Stress increases cortisol to the memory apparatus in the hippocampus. When stress is too high, too much cortisol binds to each neuron in the hippocampus, increasing metabolism so much that the neurons overheat and die. This damage decreases the hippocampus' ability to place future stressful situations in a useful context so that the individual experiences unrelated sensory fragments. This phenomenon is common among soldiers and abused children, but can also occur in anyone who experiences life stresses as traumatic events. Given the situations of overwhelming sensory stimulation, and the very real bullying that many children with ASD experience, the panicky, over-reactive behaviors that others observe are more understandable when viewed as reactions to stress.

Psychologically, a learning process is developing that defines and organizes experiences so that the individual can utilize patterns of responses to address various emotion-laden situations. Hence, we develop certain schemata, which are prepared responses to challenging situations. While this may be an efficient strategy for individuals who easily recognize when each pattern or schema should be deployed, it may not work for those on the spectrum who have difficulty making such judgments. For individuals with ASD who have frequent misperceptions, the deployment of faulty schemata can become recurrent maladaptive thinking and regulating patterns that are difficult to change.

...if a child too often experiences certain stimuli as overwhelming and the amygdala goes into action, this response may become neurologically entrenched and difficult to rewire.

How Is Emotional Regulation Compromised in ASD?

Everyone has difficulty regulating emotions from time to time, but individuals on the spectrum have additional challenges to the development of a smoothly functioning regulating system. These include neurological differences; fewer opportunities to engage in social give and take during critical times of brain growth; sensory and processing differences; and the negative experiences that arise from continual teasing and/or rejection. Positive feelings can restore emotional equilibrium, but what happens if you seldom have positive experiences and are overwhelmed by negative feelings, situations that are commonly seen in ASD? Good intentions to control behavior and emotional outbursts may disappear in the face of day-to-day challenges. When the energy to maintain emotional equilibrium becomes depleted, one's long-term intention is overwhelmed by the short-term goal of gaining relief from negative emotion. This may take the form of breaking a diet when we want to lose weight, procrastinating on a challenging task, or having a meltdown despite detailed plans to the contrary. Procrastination and aggression are common characteristics of children and adults on the spectrum that others have difficulty fully understanding. They can be better understood and more effectively

addressed when viewed as failures in a depleted emotional regulation system.

Some individuals with ASD learn how to suppress rather than manage negative feelings. While this may help them to appear more socially acceptable, the internal effort required to suppress emotions serves to distract them from social interplay, thus increasing isolation and hindering the growth of relationships. Suppression can also escalate physiological stress. Others with ASD live in a state of constant anxiety, fueled by their fear of losing control. They ruminate on negative feeling states which prolongs rather than regulates them. Avoidance by others, who find the constant anxiety off-putting, further alienates these individuals from possible social interactions. If we understand all of these behaviors as failures of regulation, rather than as purposeful actions, we will be on a better path for helping to facilitate change.

Common wisdom suggests that talking about emotional stresses helps us to cope with and regulate them. Research tells us, however, that verbalizing itself is insufficient to support emotional regulation. There must also be a willing partner who listens, supports, and reciprocates emotionally. But what if we have difficulty with this kind of expression or have no one to listen, as is common in those with ASD? As children mature to adolescence and adulthood, parents become less important in this regard, and peers and emotional partners gain preeminence. For teens and adults who have no important peer relationships, the support for emotional regulation simply is not there. Indeed, the very skills which create these helpful relationships are often wanting in individuals with ASD. Not only is feeling friendless and unsupported immensely painful, but the long-term effects of social isolation have detrimental effects on the development of emotional regulation abilities. Hence, families and teachers need to redouble their efforts to help children find meaningful social relationships, since growing up without such relationships can have negative biological, psychological, and social consequences that severely impact emotional regulation.

Conclusion

Emotional regulation is a critical part of all developmental processes, yet it has typically been given less attention than specific social skill development for this population. Because individuals with ASD may have biological differences that affect emotional regulation development, and because they have limited social opportunities that would give them the necessary experiences to develop emotional regulation, they are at tremendous risk for developing a pathological regulation system that may forever limit their inclusion and quality of life. To address this complex issue, it is necessary to consider how to intervene, particularly at critical periods of brain development. Recommendations for promoting emotional regulation in individuals on the spectrum are offered in Tables 1 and 2 following this article. It is hoped that they will provide guidance for parents and professionals on this very important issue.

Reference List

Baron-Cohen, S. (2004) *Mind reading: The interactive guide to emotions* (CD-ROM). London: Jessica Kingsley Publishers.

Gutstein, S.E. (2005, Spring). Relationship development intervention: Developing a treatment program to address the unique social and emotional deficits in autism spectrum disorders. *Autism Spectrum Quarterly,* 8-11.

Gutstein, S.E. & Sheely, R.K. (2002) *Relationship development with children, adolescents and adults: Social and emotional development activities for Asperger syndrome, autism, PDD and NLD.* London: Jessica Kingsley Publishers.

Gutstein, S.E. & Sheely, R.K. (2002) *Relationship development intervention with young children: Social and emotional activities for Asperger syndrome, autism, PDD and NLD.* London: Jessica Kingsley Publishers.

Prizant, B.M. (2005) *The SCERTS model set: A comprehensive educational approach for children with autism spectrum disorders.* Baltimore: Paul H. Brookes Publishing Company.

Other Resources of Interest

Philippot, Pierre & Feldman, Robert S., Eds. (2004). *The regulation of emotion.* Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.

Strauch, Barbara (2003) *The primal teen.* New York: Doubleday.

Table 1.

There should be specific training in the subskills of emotional regulation, including attention to the following:

1. Practice in controlled breathing; muscle relaxation; recognition of physiologic states; and the development of healthy habits in sleeping and eating
2. Practice in the recognition of facial expressions; emotional and social cues; and one's own emotional states
3. Practice in predicting one's own and others' behavior
4. Practice in identifying emotional and sensory overwhelm and, in developing new schemata for behavior through the use of Social Stories and visual supports
5. Practice in self-talk, based on modifying negative schemata, such as that used in Social Stories

Table 2.

Efforts that support other important aspects of development should include:

1. Creatively developing social partners for children and adolescents through mentorships, common interests, and support networks, particularly at critical periods of development
2. Development of positive rather than negative outlooks to bolster energy for emotional regulation
3. Cognitive therapy to help individuals identify dysfunctional negative feelings and practice more positive emotional states
4. Minimization of negative environmental elements through anti-bullying programs and other large-scale social actions
5. Creative use of life coaching, mentorship, and other social supports for adults
6. Utilization of programs that address specific aspects of emotional regulation such as *Mind Reading (*Baron-Cohen, 2004*), SCERTS (*Prizant, 2005*), and Relationship Development Intervention (RDI) (*Gutstein 2005; Gutstein & Sheely, 2002*).* Please see Reference List above for additional information.

Bio

Dr. Lynda Geller has been involved in academia for 22 years before coming to Asperger Foundation International as its executive director. Prior to assuming that post, she served on the faculties of Georgetown University in Washington, D.C., and Stony Brook University in New York. She has developed and taught courses related to the autism spectrum; trained professionals from diverse disciplines in specialized diagnosis and treatment; and has been heavily involved in consultation to schools as they have moved to more inclusionary models of education for students with special needs. As a psychologist, Dr. Geller has worked to develop specialized model services for children and adults with ASD, and has promoted issues related to quality of life and optimizing independence.

Dr. Geller's article appears in the Summer 2005 issue of *Autism Spectrum Quarterly* (**http://www.asquarterly.com/**).