

Behavioral and Socioemotional Development in Preterm Children

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KEYWORDS

• Socioemotional • Behavior • Prematurity • Autism • ADHD

KEY POINTS

- Development of socioemotional competence is crucial for optimal long-term neurodevelopmental outcomes in preterm children.
- Preterm children are at increased risk for behavior and socioemotional difficulties (including attention deficit disorder, attention deficit/hyperactivity disorder and autism spectrum disorder) given brain vulnerability, which is sensitive to environmental stressors during critical periods of brain development.
- Clinicians, researchers, and parents should recognize that a complete assessment of outcomes on prematurity should include behavioral and socioemotional functioning.
- Accessibility to early-intervention programs to improve socioemotional functioning and behavioral problems can potentially improve long-term neurodevelopmental outcomes on preterm children.

INTRODUCTION

Advances in technology and health care delivery have resulted in an increased number of preterm infants at lower gestational ages surviving, both with and without clinical complications.¹ However, these children develop significant morbidities at higher rates than their term counterparts. Preterm children are at risk for neurologic injury associated with immaturity, hypoxia, inflammation, painful procedures, and stressful treatments. These injuries can have long-lasting effects, including cognitive, behavioral, motor language, and neurosensory impairment. Given the increased survival

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rate of preterm children, clinicians should be made aware of the behavioral and socioemotional difficulties experienced by preterm children and their families in addition to other traditional outcomes.

Definitions

It has been reported that children born preterm have decreased socioemotional functioning.^{2–5} Socioemotional functioning involves the ability to learn to successfully interact and communicate within a social context and to efficiently deal with emotions. It requires skillful coordination of multiple psychological processes.^{6,7} Furthermore, the term “social competence” refers to a variety of mental mechanisms aimed at supporting successful social functioning, including emotional self-regulation, social cognitive processing, positive communication, and prosocial social relationships.⁸ The term “social cognition” refers to the fundamental abilities to perceive, store, analyze, process, categorize, reason with, and behave toward others.⁹

To develop effective social interactions and social adjustments, it is important to recognize facial emotional expressions. Deficits in emotional understanding are associated with socioemotional and psychiatric disorders.¹⁰ Preterm children have difficulties recognizing emotion.^{11,12} A study in 8-year-old to 11-year-old very preterm children described problems interpreting each other’s emotions using a complex test of social perceptual skills.¹³

Emotion regulation has increasingly been recognized as a potential crucial marker of later psychosocial risk.^{14,15} Emotion regulation refers to a child’s ability to modulate his or her emotions in response to people and situations, using a range of cognitive, physiologic, and behavioral processes and strategies, allowing for empathic and socially appropriate behavior. Emotional regulation was longitudinally tested in a group of very preterm children at 2 and 4 years. Higher mean levels of emotional dysregulation emerged at both time points in the very preterm group compared with controls.^{8,16}

Social cognitive skills related to theory of mind are also impaired in preterm children.^{17,18} Theory of mind is defined as the ability to understand that other people may have different motivations and emotions from one’s own and that people’s behavior is guided by their inner states.¹⁹ Impaired theory of mind has been described as a core deficit in autism spectrum disorder (ASD) and has been linked to social anxiety and low popularity with peers.⁷

The developmental regulation process initially involves physiologic regulation during the neonatal period, emotional regulation during infancy, attention regulation during toddlerhood, and self-regulation during preschool years.²⁰ Specific brain networks have been found to subserve these processes and to form the so-called “social brain.”²¹ The cornerstone of successful social adjustment is social competence achieved in the context of its typically developing neural substrates.

The increased social vulnerability seen in preterm children occurs as a result of specific alterations in the social brain, part of the neurodevelopmental sequelae of very preterm birth.²²

SOCIOEMOTIONAL DEVELOPMENT AND PREMATURITY

Perinatal Brain Injury Related to Behavioral Difficulties and Socioemotional Problems

The etiology of the behavioral abnormalities noted in preterm children is not clear but very likely to be multifactorial, and perinatal brain injury has been implicated as a contributing cause. Children born preterm are at high risk for brain injury, with the most common abnormality being white matter injury.^{23,24} Inder and colleagues²⁵

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