

PAPER

The role of learning in social development: Illustrations from neglected children

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Abstract

Children who experience early caregiving neglect are very likely to have problems developing and maintaining relationships and regulating their social behavior. One of the earliest manifestations of this problem is reflected in indiscriminate behavior, a phenomenon where young children do not show normative wariness of strangers or use familiar adults as sources of security. To better understand the developmental mechanisms underlying the emergence of these problems, this study examined whether institutionally reared children, who experienced early social neglect, had difficulty associating motivational significance to visual stimuli. Pairing stimuli with motivational significance is presumably one of the associative learning processes involved in establishing discriminate or selective relationships with others. We found that early experiences of neglectful caregiving were associated with difficulties in acquiring such associations, and that delays in this developmental skill were related to children's social difficulties. These data suggest a way in which early social learning experiences may impact the development of processes underlying emotional development.

Research highlights

- Typically developing children successfully utilize implicit cue information to direct their goal-motivated behavior; however, socially neglected children did not make these associations.
- The extent to which children had difficulty learning these reward cues was associated with their indiscriminate behavioral problems.
- Motivated reward learning may be causally involved in the relationship between socioemotional neglect and indiscriminate behavior problems.
- Such an association sheds new light on biobehavioral systems that might be targets of successful interventions for at-risk children.

Introduction

To promote the survival of vulnerable infants, primates engage in behaviors that promote caregiver comforting, proximity, and protection, especially when infants are

faced with threat. When children are reared in neglectful or abusive conditions the development of these biobehavioral processes is hindered. Disruption of these processes is reflected in children's problems forming and maintaining relationships. These outcomes are not surprising in post-institutionalized children given that institutional settings usually lack personalized, consistent care from an individual caregiver; therefore, a child's opportunities for establishing a stable relationship with a significant adult is limited. However little is currently understood about the mechanisms through which conditions of deprivation may compromise this social and emotional development (Pollak, 2015). Here, we begin to explore the possibility that social deprivation affects children's motivational learning abilities. Motivation, the incentive to act, is generally believed to be a limbic-striatal-pallidal circuit. This circuitry allows organisms to associate information from the environment in order to integrate reward prediction into behavioral goals (Shohamy, 2011). This experiment tests whether disruption of these processes, through aberrant caregiving, undermines children's abilities to develop interpersonal relationships.

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Socioemotional deprivation and socioemotional development

Some previously neglected children establish selective relationships with their caregivers, yet many continue to show socioemotional difficulties throughout their lives. These difficulties remain even years after placement in

highly regimented rather than personal. This inconsistency limits possibilities to establish stable, personal relationships between children and their caregivers (Bakermans-Kranenburg, Steele, Zeanah, Muhamedrahimov, Vorria *et al.*, 2011). Nonhuman primates raised in analogous situations display social deficits remarkably similar to the indiscriminate patterns of