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## Attention focus and self-touch in toddlers: The moderating effect of attachment security

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### ABSTRACT

The superior self-regulation and attention-regulation abilities of securely attached children have been repeatedly demonstrated. However, the mechanisms that allow securely attached children to exhibit higher levels of attention focus than insecurely attached (anxious-ambivalent and anxious-avoidant) children need to be explored. One possible mechanism that has been hypothesized to play a role in focusing attention is self-touch. Previous research has shown that 10-year-old children exhibit more bilateral self-touch (i.e., both hands are simultaneously moving onto each other or on the body, and both hands are in contact with each other or with the body), but not lateral self-touch (i.e., one hand is moving on the other hand or on the body, and the hand is in contact with the other hand or with the body), when they focus attention on a task. Because bilateral coordination is still developing during childhood, we expected that lateral self-touch, instead of bilateral self-touch, may be associated with attention focus for toddlers. The objectives of the present study were to examine whether securely attached toddlers exhibit more self-touch, particularly lateral self-touch, while they focus on a task than while they do not focus on a task. We expected to find that the association between lateral self-touch and attention focus is not as strong for insecurely attached toddlers. Data from forty-nine mother-child dyads were employed for analyses. The attachment classification of the children was determined using the Strange Situation. The duration of attention focus and self-touch behavior during a reading task were coded. An association between lateral self-touch and attention focus was found for children of all attachment classifications. This association was particularly strong for securely attached children. We discuss the possibility that securely attached toddlers may use lateral self-touch to regulate attention.

### 1. Introduction

Attachment refers to “a bond, tie, or enduring relationship between a young child and his mother” (Ainsworth, Blehar, Waters, & Wall, 1978, p.17; Bowlby, 1969/1982; Bowlby, 1969). Numerous studies that have investigated the relationship between attachment security and attention-regulation have found that children who were classified as secure in their attachment exhibited higher levels of attention focus than children who were classified as insecure (anxious-ambivalent and anxious-avoidant) in their attachment (Ainsworth et al., 1978; Cassidy, 1994; Sroufe, 1995). However, the mechanisms that allow securely attached children to focus attention better compared to insecurely attached children still need to be examined. Previous research has found that self-touch, particularly bilateral self-touch (i.e., both hands are simultaneously moving onto each other or on the body, and both hands are in

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contact with each other or with the body), is strongly related to attention focus for 10-year-old children (Barroso, Freedman, & Grand, 1980; Barroso, Freedman, Grand, & van Meel, 1978). However, because bilateral coordination is still developing during childhood (Magalhaes, Koomar, & Cermak, 1989), we expected that lateral self-touch (i.e., one hand is moving on the other hand or on the body, and the hand is in contact with the other hand or with the body), rather than bilateral self-touch, may be associated with attention focus for toddlers. In sum, we hypothesized that securely attached toddlers exhibit more self-touch, particularly lateral self-touch, while they are focusing on a task than while they are not focusing on a task. We expected that this association between lateral self-touch and attention focus is not as strong for insecurely attached toddlers.

### 1.1. Attachment security and attention-regulation

The superior self-regulation and attention-regulation abilities of securely attached children have been repeatedly demonstrated (Cassidy, 1994; Sroufe, 1995). Securely attached children whose caregivers have been consistently responsive and caring learn that their caregivers would be available at a time of distress (Cassidy, 1994). This history of consistent care during infancy enables securely attached children to use their caregiver as a secure base, which leads them to explore environments, pursue autonomous activities, and achieve self-regulation and attention-regulation skills, including attention focus, during toddlerhood (Sroufe, 1995).

Anxious-ambivalent children whose caregivers have been inconsistently available, at times being responsive and at other times neglectful, during infancy develop to show extreme dependence on their caregiver and seek attention from their caregiver (Ainsworth et al., 1978; Cassidy, 1994). This intense dependency on their caregiver interferes with the development of autonomy, self-regulation, and attention-regulation, including attention focus, of these children (Cassidy, 1994).

Children who have a history of consistent rejection from their caregiver in times of need minimize the importance of their caregiver (Cassidy, 1994). By the end of the first year, children avoid contact with their caregiver when under stress. These anxious-avoidant children seem to be independent on a behavior level. However, the distress level, measured with cortisol, of anxious-avoidant children increases after participating in the Strange Situation, whereas it slightly decreases for securely attached children, suggesting an inappropriate coping strategy of anxious-avoidant children (Spangler & Grossman, 1993).

In fact, both anxious-avoidant children and anxious-ambivalent children are found to have poor self-regulation and attention-regulation skills, including attention focus. Matas, Arend, and Sroufe (1978) found that, during a problem solving task, 24-month-old toddlers with insecure attachment styles spend less time focusing on the task, show less positive affect and more negative affect, and exhibit more frustration behaviors than toddlers with secure attachment style. Main (1983) demonstrated that 21-month-old securely attached toddlers play with toys longer than insecurely attached toddlers when caregivers are prevented from initiating play. Securely attached toddlers were also observed to focus their attention on the toys more intensely (e.g., “the face showed intense monitoring of play”) and fully (e.g., “visual regard was almost constantly directed to the object(s) being manipulated”) than insecure children (Main, 1983).

This association between attachment security and attention-regulation has also been observed at other ages. In primary school, securely attached children show higher levels of attention control (i.e., focusing and shifting attention) than insecurely attached children (Muris & Dietvorst, 2006). In addition, adults with higher attachment anxiety tend to report having difficulty focusing and shifting attention than those with lower attachment anxiety (Skowron & Dendy, 2004).

Thus, for securely attached children, their caregiver functions as a secure base, which creates a context in which they can pursue autonomous activities, engage in challenging tasks, and focus attention (Bowlby, 2005). Lack of this secure base, on the other hand, may cause more difficulty in attempting to focus attention for anxious-ambivalent and anxious-avoidant attached children. However, the mechanisms that allow securely attached children to focus attention better compared to insecurely attached children still need to be explored. One potential mechanism that has been hypothesized to play a role in focusing attention is self-touch. In the next section (1.2.), we review the importance of touch in attachment theory.

### 1.2. Attachment and touch

Touch is considered to be one of the core components of attachment theory. By being touched by their caregiver, infants learn that the caregiver is present and they can be protected in times of threat (Main, 1983). Touch is the largest sensory system of a body and the first sense to develop (Montague, 1971). Touch has a variety of significant functions, such as enhancing positive emotion and attention orientation (Clements & Tracy, 1977; Feldman et al., 2003). For instance, mother’s touch elevates the infant’s smiling and eye contact behaviors (Feldman et al., 2003). Also, adults’ touch has been found to promote attention focus and performance in a problem-solving task of children (Clements & Tracy, 1977).

Although touch is an important aspect of attachment theory, most studies have focused on its extrinsic forms (i.e., being touched by a caregiver, and touching a caregiver) and have neglected its intrinsic form (i.e., self-touch). To the best of our knowledge, self-touch has not been investigated in relation to attachment in toddlers, although this relation would be important because self-touch has been shown to relate to attention focus.

### 1.3. Attention focus and two forms of self-touch behavior

Previous studies have shown that the duration of self-touch increases when people focus attention on a task. Barroso et al. (1978) studied two forms of self-touch: bilateral self-touch and lateral self-touch. Bilateral self-touch refers to types of self-touch, in which both hands are simultaneously moving onto each other or on the body, and both hands are in contact with each other or with the

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