

Original Reports

Does Caregiver Behavior Mediate the Relationship Between Cultural Individualism and Infant Pain at 12 Months of Age?



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Abstract: This study aimed to understand the relationship between caregiver culture and infant pain expression at the 12-month immunization and discern if a mechanism subsuming this relationship was the quality of caregiver behaviors (emotional availability). Infants (N = 393) with immunization data at 12 months of age were examined. On the basis of the Development of Infant Acute Pain Responding model, a mediation model was developed to examine how caregiver behaviors mediate the relationship between caregiver heritage culture and infant pain. Culture was operationalized by an objectively derived quantification of caregivers' self-reported heritage culture's individualism. Two mediation models were estimated, examining infant pain expression at 1 and 2 minutes post-needle. Caregivers who self-reported heritage cultures that were more highly individualistic tended to show greater emotional availability, which in turn predicted decreased infant pain expression at 1 and 2 minutes post-needle. The present findings further our understanding of one mechanism by which caregiver culture affects infant acute pain expression.

Perspective: Adding to the literature examining direct relationships between culture and infant immunization pain, this article proposes the quality of caregiver behaviors as a mechanism by which culture affects infant acute pain expression at 12 months of age. Results support the proposed mechanism and inform our understanding of the role of caregiver culture in the infant pain context.

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Key words: Caregiver culture, caregiver behaviors, infant immunization pain, emotional availability, infant pain behaviors.

Children from cultural minority groups are particularly at risk for undermanaged pain because of culturally insensitive measures of pain, cultural variability in expressions of pain, and cultural biases among

health care providers.¹⁴ However, research is necessary to better understand the influence of culture in the infant pain context. The Development of Infant Acute Pain Responding (DIAPR) model²² was developed to provide a biopsychosocial framework to advance our understanding of the unique context of infant pain. Unlike predecessor models,⁶ the model identifies larger social contexts (eg, culture) as having an indirect effect on the infant's pain expression through the actions of the primary caregiver.

The DIAPR model postulates that, over the first year of life, culture affects an infant's pain response indirectly through its influence on the cognitions and behaviors of the caregiver. The DIAPR model identifies a number of feedback loops that reflect the dynamic nature of parent and infant interactions. Most germane to the present study is the parental feedback loop, which suggests that parents use existing schemas of pain, informed by larger external systems (eg, heritage cultural norms,

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norms of their health care institutions), to influence their caregiving behaviors, which in turn then affects the infant's pain responding. The DIAPR model offers a speculation that the caregiver's external influences (eg, culture) are filtered through the caregiver's behaviors and affect infant pain reactivity and regulation.²² The current report seeks to evidence this potential mechanism of how culture affects the pained infant through the caregiver behaviors using mediation modeling.

The previous literature on culture and infant immunization pain has defined culture according to country of origin,^{15,27} cultural perspective,³² and acculturation.²³ In the broader culture literature, Berry¹ purports that one must go beyond knowing what one's culture is and understand the strength of an individual's identification with their mainstream and heritage cultures.

Another construct commonly used when attempting to operationalize culture is individualism. Individualism has been defined as the degree to which people live and behave as individuals as opposed to members of groups.¹² It represents an important aspect of culture that contributes to intercultural differences by broadly operationalizing how an individual would prioritize others over the self when making decisions to enact behavior and often has been shown to relate to how tolerant a culture is on expressions of emotion that are self-serving (eg, discouraging expressions of personal distress to avoid disturbing the larger social group). Individualistic cultures would argue the primary task of a caregiver when faced with their highly distressed child from an immunization is to enact behaviors that would acknowledge the child's pain even if disruptive to the senior members of the social group (parents, physicians).⁴

Only one study has examined the relationship between maternal heritage culture (individualist vs collectivist), discrete caregiver soothing behaviors, and infant immunization pain behaviors.³² The researchers found that infant pain-related distress did not differ as a function of maternal culture.³² However, mothers from an individualist culture used a greater number of affection-related soothing behaviors over 1 minute after infants' immunizations compared with mothers from a collectivist culture. Logically, if there is a relationship between caregiver culture and soothing behaviors,³² and a relationship between caregiver soothing behaviors and infant needle-pain,⁵ it seems reasonable to pursue the hypothesis that the mechanism by which caregiver culture affects infant needle pain is via soothing behaviors. Presently, to our knowledge there are no studies that have comprehensively examined the relationship between caregiver culture, caregiver behaviors, and infant pain in one unified model.

The present study aimed to extend the literature in 2 ways: 1) implementing a more sophisticated model to understand the mechanism by which caregiver culture may affect infant pain, and 2) to operationalize individualism using a continuous objective rating system³⁰ rather than a dichotomous decision. To our knowledge, this is the first study in the infant acute pain context to examine individualism using an objective quantification of the caregivers' self-reported heritage culture's individualism. This is an important contribution to the literature

because the study models facilitate exploration of what aspect of culture actually affects a caregiver's behaviors (ie, individualism as a mechanism subsuming the effect of culture). Accordingly, the present study aimed to address one overarching research question: Does caregivers' self-reported heritage culture's individualism affect infant pain expression via the quality of caregivers' behaviors? Guided by the DIAPR model,²² it was hypothesized that caregivers' self-reported heritage culture's individualism would predict infant pain expression indirectly through the quality of caregivers' behaviors.

Methods

Participants

The present study examined a subsample (N = 393) of infant-caregiver dyads from the Opportunity to Understand Childhood Hurt (OUCH) cohort with 12-month immunization data. The OUCH cohort was a longitudinal sample observed in 3 pediatric clinics in a metropolitan area between 2007 and 2012. Further details of this longitudinal study are published elsewhere.^{5,19,20} Infants' 12-month immunization data were available for 547 infants. However, several cases (n = 100) were dropped because of a mismatch between the caregiver whose cultural information was obtained (eg, self-reported heritage culture, heritage acculturation ratings) and the caregiver who actually did the majority of soothing during the 12-month immunization appointment. Additional cases were dropped (n = 54) because of an inability to use the self-reported cultural information reported by the caregiver (eg, pieces of cultural information were missing, participants who identified their heritage culture as 'Canadian,' provided inconsistent heritage, and North American acculturation ratings), or code infant and/or caregiver behaviors during the immunization appointment. Caregivers were fluent in English. Infants had no suspected developmental delays or chronic illnesses, had never been admitted to a neonatal intensive care unit, were not born more than 3 weeks premature, and had no other siblings participating in the study.

Summary of Procedure

The York University Human Participants Review Committee and The Hospital for Sick Children Research Ethics Board approved the study. Informed consent was obtained from all caregivers who participated in the study. Overall, caregivers filled out information on their cultural background in the waiting room. For this analysis, caregiver behaviors were coded from video footage before, during, and after the immunization needles. Infant pain behaviors were post-needle. For a full description of the procedures, see Riddell et al.¹⁹

Measures

Caregivers' Self-Reported Heritage Culture's Individualism

Caregivers were asked in the waiting room, before the immunization, what their heritage culture is using an

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