

In addition to individual presentations on other panels, the following symposium, based on a CHHD-affiliated project, has been accepted for presentation at the Biannual Meetings of the Society for Research in Child Development, scheduled for Boston in March, 2007.

Symposium Proposal

Title: The Cultural Regulation of Rest and Arousal in Early Infancy

Conveners: Sara Harkness & Charles M. Super
(Department of Human Development and Family Studies, University of Connecticut, 348 Mansfield Road, Storrs, CT 06269 USA)

Contact: Sara.Harkness@uconn.edu.

Symposium Abstract:

The regulation of state of arousal through both stimulation and rest is an important determinant of infant behavior and development during the opening months of life. This symposium will present findings from collaborative international studies of mothers and infants in the US, the Netherlands, Italy, Spain, and Korea. The symposium opens with a presentation of findings from maternal interviews, indicating that there are significant differences in the ethnotheories that mothers use in organizing their thinking about parenting to promote culturally valued aspects of development. The second paper again focuses on the mother as an organizer of the child's developmental niche, but with an emphasis on mothers' experiences of stress and support including self-report and diurnal cortisol. In the third paper, we focus on the US and Dutch infants' immediate environment and behavior at 2 and 6 months of age, as observed during videotaped home observations. The last paper completes the sequence with analyses of infant sleep patterns and diurnal cortisol at 2 and 6 months, as well as maternal temperament ratings at 6 months. Together, these studies demonstrate how cultural ideas and practices, in interaction with individual constitutional differences, affect the infant's behavior and development.

Paper 1 in Symposium: The Cultural Regulation of Rest and Arousal in Early Infancy

Title: Mothers' ideas and practices related to infant development in Italy, Spain, the Netherlands, Korea, and the US

Sara Harkness (University of Connecticut, USA) Contact: Sara.Harkness@uconn.edu
Ughetta Moscardino (University of Padua, Italy)
Marjolijn Blom (University of Connecticut and University of Amsterdam)
Blanca Huitron (University of Seville, Spain)
Jong-Hay Rha (Hannam University, Korea)
On-Kang Hyun (Inha University, Korea)
Chen Zhu (University of Connecticut, USA)
Charles M. Super (University of Connecticut, USA)

The comparative study of early development suggests that there are important differences in parental ethnotheories and their instantiation in practices among mothers in post-industrial societies of both East and West, setting a foundation in early life for later cultural divergences in development. This paper examines mothers' cultural ideas and practices related to infants in the first 6 months of life in five cultural groups: Italy, Spain, the Netherlands, Korea, and the US. Mothers (approximately 30 in each site) were interviewed in their homes when the infants were aged 2 and 6 months about their perceptions of their infants, their ideas about the baby's developmental needs, and daily practices of care. The transcribed interviews were coded using an inductively derived set of categories of themes and practices related to the development of regulation of state of arousal.

Preliminary analyses of interviews indicate that the themes can be grouped into four main categories: Stimulation of Development, Rest and Regularity, Emotional Closeness, and Physical Care and Well-being. Comparisons of the frequency of occurrence of the themes across the samples show significant group differences. The Stimulation themes (Cognitive Development, Perceptual Stimulation, and High Arousal) were most frequently found in the US interviews. In contrast, themes related to Rest and Regularity were most frequent in the Dutch sample. Themes related to Emotional Closeness were highest in the Italian sample. Mothers in the Spanish sample were similar to the Italian mothers in their emphasis on the baby as a socio-emotional being, but gave even greater attention to the baby's physical experience (see table 1). The Korean mothers presented yet another culture-specific pattern of themes, characterized by physical closeness and attentiveness to the baby's immediate needs. Mothers described practices of care as expressions of their ethnotheories: for example the US mothers described teaching practices intended to maximize the child's cognitive development, whereas the Dutch mothers emphasized practices intended to teach the child self-regulation. Furthermore, close inspection of the ways that mothers talked about various themes shows the pervasiveness of dominant cultural themes: for example, when the Italian mothers talked about "stimulation," they generally meant social rather than strictly cognitive stimulation.

These cultural patterns will be presented using a theoretical model for integrating the study of parental ethnotheories with practices of care and ultimately developmental outcomes. The results will be discussed in relation to the role of parental ethnotheories as they influence infants' development of emotion and self-regulation.

Paper 2 in Symposium: The Cultural Regulation of Rest and Arousal in Early Infancy

Title: The Role of Ethnotheories in Maternal Experience and Well-Being

Caroline Johnston (University of Connecticut) Contact: Caroline.Johnston@uconn.edu
Colleen Vesely (University of Connecticut)
Mary Sutherland (University of Connecticut)
Marjolijn J. M. Blom (University of Connecticut and University of Amsterdam)
Ughetta Moscardino (University of Padua, Italy)
Blanca Huitron (University of Seville, Spain)
Jong-Hay Rha (Hannam University, Korea)
Douglas A. Granger (Pennsylvania State University)
Sara Harkness (University of Connecticut)
Charles M. Super (University of Connecticut)

An extensive body of research has documented the importance of maternal well-being (or conversely depression) for the healthy development of infants and children. A more recent addition to this literature has been the measurement of maternal stress via the hormone cortisol. Little attention has been given, however, to cultural variability in the mother's environment as it may affect maternal well-being and stress. In this paper, we examine mothers' self-reported social support and mood at 2 and 6 months postpartum, and relate these to maternal salivary cortisol in order to derive a fuller picture of the cultural structuring of maternal experience and well-being during the first six months after giving birth.

Mothers participating in this study were in five different cultural communities: Italy, Spain, the Netherlands, Korea, and the US. Mothers (approximately 30 in each site) were interviewed in their homes when the infants were aged 2 and 6 months about their sources of social support and advice and their experience of motherhood. Mothers also filled out the Edinburgh postpartum depression scale at 2 months postpartum. In addition, mothers filled out a checklist of mood descriptors (e.g. irritable, loving, forgetful) during three days of keeping a structured "diary" of their child's day. Finally, mothers sampled their own salivary cortisol four times daily (upon waking up, at mid-day, in late afternoon, and just before bed) during the second and third days of diary-keeping at both 2 and 6 months.

Preliminary analyses of maternal cortisol in three of the sites (the Netherlands, Korea and the US) indicate strong cultural differences in both levels and diurnal patterning. There are also highly significant cross-cultural differences in the mood descriptor profiles ($p < .0001$ for all comparisons). In interviews at 2 and 6 months, there are clear cultural differences in mothers' reported experience of social support and stress, with the US mothers receiving the least support from either institutional or informal sources. US mothers, relatedly, express the most discontent with lack of time for self-care. Interestingly, the US mothers report lower Edinburgh scale scores than either the Italian or Spanish mothers, surpassing only the Dutch mothers; at the same time, these American mothers also seem to demand the most of themselves in terms of a quick return to regular routines. The results are discussed as an example of the cultural-biological interface of maternal experience and, ultimately, mothers' ability to create and sustain their infant's niche of development.

Paper 3 in Symposium: The Cultural Regulation of Rest and Arousal in Early Infancy

Title: Infant Arousal and Stimulation in the Netherlands and the United States

Katherine E. Speirs (University of Connecticut, USA) Contact: katherine.speirs@uconn.edu
Rachel Golden Luck (University of Connecticut, USA)
Charles M. Super (University of Connecticut, USA)
Sara Harkness (University of Connecticut, USA)
Marjolijn Blom (University of Connecticut, USA and University of Amsterdam)

How important is infant stimulation is for healthy development? How do babies best learn to rest and self-regulate? Even among Western cultures, parental ethnotheories appear to differ on these fundamental questions. This paper will present a comparison of infant states of arousal and parental stimulation and interaction from families in the Northeast United States ($n=24$) and the province of South Holland in the Netherlands ($n=24$).

Data were collected through naturalistic home observations when the infants were 2 and 6 months old. Each infant was videotaped while awake three times (during the morning, afternoon, and evening) on three different days in order to capture a broad range of parent and infant behaviors. All videotapes were coded by trained research assistants, and inter-rater reliability was regularly established.

Preliminary analyses indicate that at 2 months, there are significant cultural differences in infant states of arousal and in parental stimulation. American parents were found to more frequently stimulate and interact with their infants by talking to ($p = .002$), offering an object to ($p = .02$), and touching them ($p = .07$). Consequently, American children were found to spend more of their awake hours in an active (compared to quiet) alert state. In the Netherlands, however, infants were observed to spend more of their awake time in a quiet alert state, and Dutch parents were less likely to engage their infants in physical activity and to provide stimulation. These differences, which are also reflected in the 6-month data, correspond to differences in parental ethnotheories regarding infant needs, and in them we can see the early socialization of states of arousal.

Paper 4 in Symposium: The Cultural Regulation of Rest and Arousal in Early Infancy

Title: Parental Ethnotheories Reflected in Bio-Behavioral Development

Charles M. Super (University of Connecticut) Contact: charles.super@uconn.edu
Marjolijn Blom (University of Connecticut and University of Amsterdam)
Douglas A. Granger (Pennsylvania State University)
Rachel Luck (University of Connecticut)
Nivedita Ranade (University of Connecticut)
Ughetta Moscardino (University of Padua, Italy)
Blanca Huitron (University of Seville, Spain)
Jong-Hay Rha (Hannam University, South Korea)
On-Kang Hyun (Inha University, South Korea)
Sara Harkness (University of Connecticut)

Cross-cultural research that highlights the integration of potentially disparate ecological factors can elucidate aspects of the environmental regulation of development that are invisible in mono-cultural studies. Drawing on the previous contributions in this symposium as essential background, this presentation highlights developmental outcomes that are related to the cultural differences in parental ethnotheories and related practices, with a particular focus on the Dutch - US contrast. Developmental outcomes in three domains are analyzed: The development of sleep and active arousal; the level and daily patterning of infant cortisol levels; and infant temperament as rated by mothers.

Earlier reports using parental diaries as a data source have demonstrated that infants and young children in the towns of South Holland sleep significantly more, and in longer bouts, than do their counterparts in the Northeast US. The present report, drawing on new samples described earlier in this symposium, confirm the finding of longer daily sleep by Dutch infants at 2 and 6 months (group averages = 14.6 and 13.0 hours, difference = 1.6 hours, $F = 4.34$, $df = 1/34$, $p = .04$). A summary index of sleep maturity (reflecting changes in amount and patterning) was significantly greater for the Dutch infants at both 2 and 6 months. Because parental diaries are known to overestimate infant sleep through failure to record some nighttime wakings, we also used micro-actigraphs (attached to the ankle) to record objectively the amount and patterning of activity when the infants were 8 months old. A standard algorithm (Sadeh *et al.*, 1995) was used to estimate sleep from these 24-hour recordings, yielding the same contrast: 10.7 vs. 9.0 hours, for a mean difference of 1.7 hours ($F = 7.04$, $df = 1/44$, $p = .01$, $D = 0.81$).

Preliminary analysis of salivary cortisol and 2 and 6 months reveals group differences in both absolute level and (corresponding to the sleep results) in the emergence of stable diurnal rhythms. Mean levels for the Dutch infants are 0.18 and 0.20 ug/dl at 2 and 6 months, respectively, compared to 0.31 and 0.25 for the US infants ($p < .04$). In addition, there is preliminary evidence that at 6 months more Dutch infants, compared to US infants, have established the mature pattern of declining levels over the course of the day. There is some evidence of this effect at 2 months also. An index of regularity in daily routines, presumably acting as *zeitgebers*, shows greater ecological support for establishing diurnal rhythms in the Netherlands.

Finally, maternal temperament ratings differ significantly between the two sites in a pattern that is compatible with the more direct measures. US infants were rated significantly

higher ($p < .05$) on the second-order factor of Negative Arousal (especially Negative Emotionality, Fear, and Sadness), but not on factors of Positive Arousal or Soothability.

Additional results from the Italian, Spanish, and Korean samples will be used to highlight key aspects of the cultural regulation of early development, especially concerning the longitudinal correlates of early differences in arousal and reactivity.

Reference

Sadeh, A., Acebo, C., Seifer, R., Aytur, S., & Carskadon, M.A. (1995). Activity-based assessment of sleep-wake patterns during the 1st year of life. *Infant Behavior and Development*, *18*, 329-337.