

Parenting and infant cry

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Parenting and Infant Cry

Gianluca Esposito and Marc H. Bornstein

SYNOPSIS

This Special Issue collects five empirical studies from around the world that use diverse methodological approaches and focus at different levels to investigate how behavioral, hormonal, prenatal and postnatal factors, brain functioning, and environment regulate early interactions of parents with distressed infants and young children.

Cry represents the first and initial form human (and nonhuman) infants use to communicate with the external world (Esposito, Hiroi, & Scattoni, 2017). This form of communication is so important that its abnormal developmental trajectory may signal atypical development (Esposito, Nakazawa, Venuti, & Bornstein, 2012; Esposito & Venuti, 2009).

Across mammalian species, cry specifies infant needs and fulfills the important role of attracting caregiver attention and proximity. Reciprocally, caregivers instinctively seek and respond to their infants' crying, using a wide but universally common repertoire of behaviors (Bornstein et al., 2017; Esposito et al., 2012). Infant and caregiver actively interact in a dance that is biologically rooted, and development proceeds through their continuous exchanges. Child and caregiver development are thus associated with dynamic reciprocal relations among multiple structures (Bornstein & Esposito, 2014; Esposito, Setoh, & Bornstein, 2015). Interactions in general, and interactions during infant cry in particular, follow a multilevel organization, extending from hormones to brain to environment.

For this Special Issue, we collected five empirical studies from around the world that use diverse methodological approaches and focus at different levels to investigate how behavioral, hormonal, prenatal and postnatal, neural, and environmental factors regulate early interactions of parents with distressed infants and young children. Before proceeding to descriptions of the articles collected in this Special Issue, we briefly digress to describe the structure of the Special Issue. We designed this Special Issue to promote discussion and exchange. Each of the five featured empirical articles was independently peer-reviewed; we then invited three scholars to add constructive commentaries; finally, the authors of the empirical articles prepared a rejoinder to the commentaries.

In the first paper of the Special Issue, Hiroaka and colleagues (2019a) demonstrate the moderating role of attachment anxiety on spousal presence in determining salivary

Alpha Amylase (sAA, an enzyme that is correlated with stress) level during infant cry.

Signature changes in concentration of sAA were utilized as a biomarker of physiological stress. Amongst mothers with high attachment anxiety, sAA level was reduced, and so they were calmer when their spouse was present. This paper reveals, in the context of cry, interactions across biological and social domains (see commentaries from Borrelli, 2019; Truzzi & Ripoli, *in press*; Bentenuto & Venuti, 2019; and the authors response; Hiroaka et al. 2019b). Zeifman and colleagues (*in press*) focus on the changes in testosterone levels in men after a caregiving simulation. Men who increase in testosterone after a caregiving simulation provide less sensitive care compared to those who decrease. These results point to a potential role of cry in provoking physiological reactions among men that may set the stage for hostile or aggressive responses (see commentaries from Lingle, 2019; Green, 2019; Setoh & Esposito, 2019; Zeifman's, *in press*, response). Using fMRI, Rigo et al. (2019a) assess Default Mode Network activity in mothers and nulliparous women. Mothers are prone to process infant cry and emotional sounds and are less distracted from doing so in situational contexts demonstrating their greater sensitivity to emotional sounds such as cry. By contrast, situational context influences brain responses to infant sounds in nulliparas (see commentaries from Ablow & Maselle, *in press*; Zeifman & Baird, *in press*; Laurent, 2019; Rigo et al.'s, 2019b, response). In the fourth paper of the Special Issue, Hechler and colleagues (2019a) focus on stability of caregiving from the prenatal to the postnatal period. For both mothers and fathers, caregiving quality for a simulator infant during pregnancy predicts postnatal quality of caregiving toward their own infant (see commentaries from Lin, Bisson, & Sanborn, 2019; Wong & Esposito, *in press*; Lee, 2019; Hechler et al.'s, 2019b, response). In the fifth and final paper, River et al. (2019) investigate the impact of exposure to work-family conflict on work-family guilt and behavioral responses to infant crying as a function of parent attachment anxiety (see commentaries from Parish-Morris, 2019; Senese, Azhari, & Cataldo, 2019; Bolten, 2019; River & Borrelli's, 2019, response).

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ARTICLE INFORMATION

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REFERENCES

- Ablow, J. C., & Maselle, J. R. (in press). The multitasking reality of the parenting brain. *Parenting: Science and Practice*, 19 (1–2), 86–89.
- Bentenuto, A., & Venuti, P. (2019). From supporting to coparenting: The new roles of fathers. *Parenting: Science and Practice*, 19 (1–2), 30–33.
- Bolten, M. I. (2019). Ghosts in the nursery 2.0: A commentary on the paper “Tolerance of infant distress among working parents: Examining the roles of attachment anxiety and work-family conflict” by River, Borelli, & Nelson-Coffey. *Parenting: Science and Practice*, 19 (1–2), 168–172.
- Borelli, J. (2019). The past is present: Responses to infant crying among mothers high in attachment anxiety. *Parenting: Science and Practice*, 19 (1–2), 22–25.
- Bornstein, M. H., & Esposito, G. (2014). Beyond cry and laugh: Toward a multi-level model of language production. *Behavioral Brain Sciences*, 37 (6), 548–549. doi:[10.1017/S0140525X13003968](https://doi.org/10.1017/S0140525X13003968)
- Bornstein, M. H., Putnick, D. L., Rigo, P., Esposito, G., Swain, J. E., Suwalsky, J. T. D., ... Venuti, P. (2017). The neurobiology of culturally common maternal responses to

infant cry. *Proceedings of the National Academy of Sciences*, 114 (45), E9465–E9473. doi:[10.1073/pnas.1712022114](https://doi.org/10.1073/pnas.1712022114)

Esposito, G., Hiroi, N., & Scattoni, M. L. (2017). Cry, baby, cry: Expression of distress as a biomarker and modulator in autism spectrum disorder. *International Journal of Neuropsychopharmacology*, 20 (6), 498–503. doi:[10.1093/ijnp/pyx014](https://doi.org/10.1093/ijnp/pyx014)

Esposito, G., Nakazawa, J., Venuti, P., & Bornstein, M. H. (2012). Perceptions of distress in young children with autism compared to typically developing children: A cultural comparison between Japan and Italy. *Research in Developmental Disabilities*, 33(4), 1059–1067. doi:[10.1016/j.ridd.2012.01.014](https://doi.org/10.1016/j.ridd.2012.01.014)

Esposito, G., Setoh, P., & Bornstein, M. H. (2015). Beyond practices and values: Toward a physio-bioecological analysis of sleeping arrangements in early infancy. *Frontiers in Psychology - Cultural Psychology*, 6 , 264.

Esposito, G., & Venuti, P. (2009). Comparative analysis of crying in children with Autism, developmental delays, and typical development. *Focus on Autism and Other Developmental Disabilities*, 24(4), 240–247. doi:[10.1177/1088357609336449](https://doi.org/10.1177/1088357609336449)

Green, J. (2019). Guys and dolls, and testosterone. *Parenting: Science and Practice*, 19 (1–2), 59–61. Hechler, C., Beijers, R., Riksen-Walraven, M., & de Weerth, C. (2019a). Prenatal predictors of postnatal quality of caregiving behaviour in mothers and fathers. *Parenting: Science and Practice*, 19 (1–2), 101–119. Hechler, C., Beijers, R., Riksen-Walraven, M., & de Weerth, C. (2019b). Studying quality of caregiving behavior: The roles of infant, mother, father, and culture. *Parenting: Science and Practice*, 19 (1–2), 133–136. Hiraoka, D., Miyasaka, M., & Nomura, M. (2019a). Spousal presence modulates saliva α -amylase responses to

infant crying in mothers with high attachment insecurity. *Parenting: Science and Practice*, 19 (1–2), 5–21. Hiraoka, D., Miyasaka, M., & Nomura, M. (2019b). A possible mechanism of stress-relieving effects of spousal presence and implications for future infant crying research. *Parenting: Science and Practice*,

19(1–2), 34–38. Laurent, H. (2019). Challenges in characterizing the “mommy brain”. *Parenting: Science and Practice*, 19 (1–2),

94–96. Lee, A. (2019). Cultural manifestations of infant caregiving. *Parenting: Science and Practice*, 19 (1–2), 130–132. Lin, H. C., Bisson, J. B., & Sanborn, S. M. (2019). And baby makes three: Kindling the reciprocal and dynamic

processes of caregiving. *Parenting: Science and Practice*, 19 (1–2), 120–123. Lingle, S. (2019). Embracing the biological roots of the infant’s cry. *Parenting: Science and Practice*, 19 (1–2), 56–58. Parish-Morris, J. (2019). It takes two to tango: Multi-directional, dynamic influences on parenting behavior.

Parenting: Science and Practice, 19 (1–2), 160–163. Rigo, P., Esposito, G., Bornstein, M. H., De Pisapia, N., Manzardo, C., & Venuti, P. (2019a). Brain processes in

mothers and nulliparous women in response to cry in different situational contexts: A Default Mode

Network study. *Parenting: Science and Practice*, 19 (1–2), 160–165. Rigo, P., Esposito, G., Bornstein, M. H., De Pisapia, N., Manzardo, C., & Venuti, P. (2019b). Self-Cognition

and Parental Brain. *Parenting: Science and Practice*, 19 (1–2), 97–100. River, L. M., & Borelli, J. L. (2019). No such thing as a baby: Responses to infant cry paradigms are primarily

influenced by parents' experiences and behavior. *Parenting: Science and Practice*, 19 (1–2), 173–176. River, L. M., Borelli, J. L., & Nelson-Coffey, K. S. (2019). Tolerance of infant distress among working parents: Examining the roles of attachment anxiety and work-family conflict. *Parenting: Science and Practice*, 19

(1–2), 137–159. Senese, V. P., Azhari, A., & Cataldo, I. (2019). A multi-system psychological approach to the under-

standing of parental dispositions. *Parenting: Science and Practice*, 19 (1–2), 164–167. Setoh, P., & Esposito, G. (2019). What men do when a baby cries: Increasing testosterone may lead to less

nurturant care but more environmental vigilance. *Parenting: Science and Practice*, 19 (1–2), 62–64. Truzzi, A., & Ripoli, C. (2019). Sympathetic activation in response to infant cry: Distress or promptness to

action? *Parenting: Science and Practice*, 19 (1–2), 26–29. Wong, K. K., & Esposito, G. (2019). The unexpected for the expecting parent: Effects of disruptive early

interactions on mother-infant relationship. *Parenting: Science and Practice*, 19 (1–2), 124–129. Zeifman, D. (2019). Infant crying, testosterone, and paternal provisions: A positive take on a punishing

signal. *Parenting: Science and Practice*, 19 (1–2), 65–68. Zeifman, D., Roelke, E., Raiss, M., King, S., & Lythel-Sternberg, J. (2019). Infant crying levels elicit divergent

testosterone response in men. *Parenting: Science and Practice*, 19 (1–2), 39–55. Zeifman, D. M., & Baird, A. A. (2019). A glimpse into the minds of mothers: The Default Mode Network and

responsiveness to infant cries. *Parenting: Science and Practice*, 19 (1–2), 90–93.