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# From the Cradle to the Grave: An Overview of Research Relating Parental Response to Infant Cries and Physical Abuse of Infants

Jamie L. Orton

*Southern Illinois University Carbondale*

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From the Cradle to the Grave:  
An Overview of Research Relating  
Parental Response to Infant Cries and Physical  
Abuse of Infants

by

Jamie L. Orton

Southern Illinois University at Carbondale

## OVERVIEW

Parental response to infant crying has been suggested to be a determining factor between abusive and nonabusive behavior toward infants by parents. Responses examined were both physiological and emotional. Physiological responses included heart rate, skin conductance, and systolic and diastolic blood pressure. Emotional responses were often measured by rating scales or questionnaires and examined the qualities of distress, pain, happiness, surprise, fear, sick, soothing, arousing, urgent, spoiled, etc. The investigations studied several groups of participants. Some had differing degrees of experience with children, admitted to abusing their child(ren), stated never abusing their child(ren), been identified at low-risk for abusing children, or been identified as being at high-risk for abusing their children. Overall, significant differences were found in most investigations between hi-risk/abusive participants and low-risk/nonabusive participants' responses. Hi-risk/abusive participants were generally found to be less sensitive and more aroused by infant cues such as crying. Therefore, the current research provides a foundation for valuable implications in understanding and eventually preventing the process of child abuse.

Citation: Beebe, S. A., Casey, R., & Pinto-Martin, J. (1993). Association of reported infant crying and maternal parenting stress. Clinical Pediatrics, 1, 15-19.

Purpose: To investigate the relationship between reported infant crying and parenting stress.

Methodology:

Procedures: Subjects were required to fill out a standardized questionnaire regarding medical history, demographic data, and delivery/birth information. They were then asked to report the number of perceived hours their infants cried during 4 periods: 6AM - noon, noon - 6PM, 6PM - midnight, and midnight - 6AM. Finally, the Parenting Stress Index was administered to the subjects.

Subjects: Participants in the current investigation were recruited from the Children's Hospital of Philadelphia at the time of their infants' well child checkups. The study was comprised of 75 mothers with infants between the ages of 6 weeks and 3 months.

Equipment: No equipment information was provided in the current investigation.

Reliability: No reliability data was reported for the current investigation.

Results: Mothers who reported excessive infant crying (more than 3 hours of crying per day) were significantly more likely to score higher on the overall Parenting Stress Index than mothers who reported less than 3 hours of crying per day.

Conclusions: The investigators concluded that mothers who score high on the Parenting Stress Index may be at risk for parenting problems because of lack of positive reinforcement and feeling rejected by the infant. Furthermore, mothers who reported excessive crying were more likely to perceive a lack of positive reinforcement from their infants than mothers who reported less than 3 hours a day of crying from their infants. The investigators then stated that the need for future studies to determine the relationship between crying and parenting stress, perceived versus actual crying, and the consequences and intervention for perceived lack of reinforcement.

Citation: Crowe, H. P., & Zeskind, P. S. (1992). Psychophysiological and perceptual responses to infant cries varying in pitch comparison of adults with low and high scores on the Child Abuse Potential Inventory. Child Abuse & Neglect, 16, 19-29.

Purpose: "...to determine if adults who score high on the Child Abuse Potential (CAP) Inventory would exhibit greater physiologic arousal to phonated and hyperphonated cry sounds in comparison to low scoring adults..."

Methodology:

Procedures: Heart rate and skin conductance were measured in response to pre-recorded infant cries varying in pitch. Participants also rated the cry stimuli on six 7-point Likert-type items. These items were spoiled-not spoiled, healthy-sick, urgent-not urgent, soothing-arousing, distressing-not distressing, and pleasant aversive.

Subjects: Initially, 284 introductory psychology students completed the CAP Inventory. Based on their CAP Inventory scores, 30 of these 284 participants were selected to continue in the investigation. Participants were divided into 2 groups with each group consisting of 8 males and 7 females.

Equipment: A Coulbourn pulse monitor (Model #S71-40) and a tachometer (Model #S77-26) were used to record heart rate changes. Skin conductance was measured with a Coulbourn Skin Conductance Coupler (Model #S71-21). Infant cry stimuli were played on a Panasonic cassette player (Model #RX5010).

Reliability: Reliability data of all p values  $>.35$  indicates no reliable differences between groups of participants on age, race, parental income, or reported history of abuse.

Results: Although no reliable difference was reported on average baseline heart rate for CAP group, the low-CAP group was found to have reliably lower resting heart rate than the high-CAP group after listening to the cry sounds over time. Participants exhibited a higher average skin conductance level for hyperphonated cries than phonated cries. Also, hyperphonated cries were perceived as significantly more urgent, arousing, distressing, aversive, and sick-sounding than phonated cries with no differences

found for spoiled.

Conclusions: The investigators concluded that the study provided important implications for the prevention of child abuse. Most importantly, adults may benefit from education regarding infants' communication if the adults are identified as less sensitive to and more physiologically aroused by infant cries.

Citation: Frodi, A. M., & Lamb, M. E. (1980). Child abusers' responses to infant smiles and cries. Child Development, 51, 238-241.

Purpose: "...to determine whether child abusers respond abnormally to infant smiles and cries..."

Methodology:

Procedures: Subjects were grouped in pairs and simultaneously presented with videotapes of infants crying and smiling. During this stimulus, subjects' physiological responses (heart rate, diastolic blood pressure, and skin conductance) were measured. After the video, subjects responded to a checklist that measured their emotional responses.

Subjects: Fourteen abusive mothers and 14 non-abusive mothers participated in the current investigation. All abusive mothers acknowledged abusing a child of preschool age or younger. Mothers were matched for age, number of children, marital status, and social class.

Equipment: No equipment information was disclosed for the current investigation.

Reliability: Reliability measures were not reported.

Results: Significant results were reported for repeated-measures ANOVA's of physiological segments of diastolic blood pressure and skin conductance. Emotional responses to the crying infant included more annoyance, distress, disturbance and sympathy, while responses to the smiling infant showed more happiness. Nonabusers responded to the cry stimulus with physiological arousal and negative emotional reactions, which were decreased when presented with the smiling stimulus. However, abusers responded to the cry stimulus with physiological arousal and negative emotional reactions that were not dissipated when presented with the video of the smiling infant.

Conclusions: The results of the current investigation indicate that abusers perceive any social elicitation such as crying and smiling to be aversive, whereas nonabusive parents perceived only the crying to be aversive. Furthermore, they concluded that parental abusive response patterns develop from interactions with children who are difficult to

care for because aversive stimuli are more likely to cause aggression. Finally, the investigators noted that further research is needed to identify behavioral patterns in abusive and nonabusive parents.



Citation: Frodi, A. M., Lamb, M. E., Leavitt, L. A., & Donovan, W. L. (1978). Fathers' and mothers' responses to infant smiles and cries. Infant Behavior and Development, 2, 187-198.

Purpose: "...to explore the effects of infant stimuli on adult behavioral propensities, and to determine whether mothers and fathers differ in their responsiveness to the infant signals crying and smiling..."

Methodology:

Procedures: Heart rate, skin conductance, and blood pressure were measured in response to infant stimuli. One-half of the participants viewed a videotape of an infant behaving in a quiescent-cry-quiescent sequence while the other half viewed a videotape with a quiescent-smile-quiescent sequence. Sixteen couples each were told before viewing the video that the infant to be viewed was normal, difficult, or premature. After viewing the infant stimulus each participant independently completed a mood adjective checklist and 2 standard questionnaires regarding their own child.

Subjects: Participants consisted of 48 white middle-class couples and ranged in age from 20 to 38 years. All participants had an infant approximately 9 months old, with 41 couples having 1 child and seven having 2 or more children.

Equipment: Heart rate and skin conductance were measured with an eight-channel Beckman Type RM Dynograph recorder with Beckman bipotential electrodes. Technical Resources' B-350 sphygmometers with electronic pickups in the cuffs were used to measure systolic and diastolic blood pressure.

Reliability: Reliability data was not reported.

Results: Significant main effects were reported for cue and trial for diastolic blood pressure, while no main effect was detected for the systolic blood pressure and infant cue or label. A marginally significant effect for cue and significant effects for label and trial were reported for skin conductance. The greatest skin conductance increases were reported when the infant was crying and labeled premature. Significant segment effects were reported for

all moods except happy. Differences between sexes for skin conductance were not significant.

Conclusion: Crying and smiling infants were found to elicit different physiological responses from participants. Therefore, these findings support the idea that infant cries are aversive to adults and adults attend to the crying infant because they desire to terminate the aversive behavior, crying. Also, the investigators concluded that labeling can determine the degree to which an infant is perceived as aversive. Mothers and fathers responded similarly in all investigations except that mothers responded with more extreme adjectives in the mood description task. The investigators warned that the sample of the investigation included too few parents of difficult infants, and that further research is warranted.

Citation: Frodi, A. M., Lamb, M. E., Leavitt, L. A., Donovan, C. A., & Sherry, D. (1978). Fathers' and mothers' responses to the faces and cries of normal and premature infants. Developmental Psychology, 14, 490-498.

Purpose: The purpose of the current investigation was to, "(a) replicate the finding by Frodi et al. (1978) that a crying infant is perceived as aversive; and to determine whether (b) the cry of a premature infant is perceived as more aversive than that of a normal baby, (c) the facial appearance of a premature infant is perceived as aversive, (d) there are sex differences in the physiological and/or self-report responses to infant cues, and (e) responsiveness to the infant cues is influenced by the parents' perceptions of their own child's temperament."

Methodology:

Procedures: Subjects' skin conductance, blood pressure, and heart rate were measured while presented with 1 of 4 videos of an infant in the states of quiescent, crying, and then quiescent. Videos included a normal infant with a normal cry, a normal infant with a premature infant's cry, a premature infant with a premature infant's cry, and a premature infant with a normal cry. The subjects then completed a mood adjective checklist, a short questionnaire, and a written version of the Perception of Baby Temperament Questionnaire.

Subjects: Participants consisted of 32 white middle-class married couples who parented a 5-month-old infant at the time of the current investigation. The average age of the wives was 26.91 years and 28.50 years for the husbands.

Equipment: Three devices were used to measure physiologic responses of the participants. A Polygraph GSR coupler was used to measure skin conductance. Beckman biopotential miniature electrodes were used to measure heart rate, and Technical Resources B-350 sphygmotats with electronic pickups in the cuff were used to measure systolic and diastolic blood pressures.

Reliability: No reliability data was reported for the current investigation.

Results: Overall, subjects reported that they felt irritated, annoyed, disturbed, distressed, frightened,

alert, and sympathetic and less happy while the baby was crying than when it was quiescent. The parents also reported that they found the normal baby more pleasant and they would rather interact with it. The subjects also experienced autonomic arousal while viewing the crying infant as determined by the measurement of heart rate, blood pressure, and skin conductance.

Conclusions: The investigators concluded that the parents were less eager to interact with the premature infant because they found the infant less pleasant and more aversive. In fact, the infant was found to be especially aversive when crying, which may have important implications for the understanding of child abuse.

Citation: Kropp, J. P., & Haynes, O. M. (1987). Abusive and nonabusive mothers' ability to identify general and specific emotion signals of infants. Child Development, 58, 187-190.

Purpose: The purpose of the current study was to investigate the possibility that abusive parents do not interpret the emotion signals from their children correctly, and therefore do not react appropriately.

Methodology:

Procedures: Participants were presented with 14 slides that represented 7 different infant emotion signals (distress/pain, surprise, sadness, joy, interest, fear, and anger). Then they were asked (1) how would you respond to this baby and (2) what is this baby feeling?

Subjects: Forty mothers participated in the current investigation. Twenty participants were members of parent education and support groups for low-income, substantiated abusive mothers. The other 20 participants were in a child abuse prevention program for low-income, high-risk, but nonabusive mothers. Participants were matched for race, age, age of children, number of children, education, and level of income.

Equipment: No equipment information was reported for the current investigation.

Reliability: Reliability data was not reported.

Results: Abusive mothers were found to be more likely than nonabusive mothers to incorrectly identify emotion signals and to label negative affect as positive.

Conclusions: The investigators concluded that previously reported lack of empathy by abusive parents may in part be due to their inability to differentiate between infant signals as well as nonabusive parents. Instead of lack of responsiveness to obvious emotion displays, the study suggests that abuse may be caused because of the inability to recognize infant signals, which is a prerequisite for empathic response. The investigators also stated the need for further research into the relation between recognizing emotion signals and responding empathically to these signals.

Citation: Milner, J. S., Halsey, L. B., Fultz, J. (1995). Empathic responsiveness and affective reactivity to infant stimuli in high- and low-risk for physical child abuse mothers. Child Abuse & Neglect, 19, 767-780.

Purpose: The current investigation examined empathic responsiveness of mothers at high- and low-risk for physically abusing their children.

Methodology:

Procedures: Participants were presented with three 2 minute videotapes and asked to indicate their emotional responses on a checklist that most closely described their feelings. They were also instructed to complete a questionnaire that investigated participants' attitudes toward children, reactions to others' situations, and childhood experiences.

Subjects: Forty-five mothers were initially recruited for the first phase of the investigation. Of these participants, 10 high-risk and 10 low-risk mothers were selected for further examination and were matched for race, age, educational level, marital status, and number of children.

Equipment: No equipment information was provided in the current investigation.

Reliability: Reliability data was not reported for the current investigation.

Results: No significant overall group differences for empathy were reported. Within-group analyses indicated that low-risk mothers showed a significant increase in empathy following presentation of a crying infant while high-risk mothers reported increases in distress and hostility.

Conclusions: The results found in the current investigation for high- and low-risk mothers' responses were consistent to the previous results of studies where abusive mothers were rated as more annoyed and less sympathetic toward an infant crying. Furthermore, the study suggests that "...the different affective measures may have been tapping a general emotional reactivity, instead of discrete emotional states." The investigators also state the limitations of the generalizability of this study because the participants do not adequately represent different age, ethnic, and gender groups.

Citation: Zeskind, P. S., & Shingler, E. A. (1991). Child abusers' perceptual responses to newborn infant cries varying in pitch. Infant Behavior and Development, 14, 335-347.

Purpose: The purpose of the current investigation was to determine what differences exist between abusive and nonabusive parents' perceptual responses to infant cries that vary in hyperphonation and to examine the effects on abusive parents when attributing a cry to a previously abused infant.

Methodology:

Procedures: Four hyperphonated cries, 4 partially hyperphonated cries, and four phonated cries with normal pitches were rated by the subjects as similar/not similar to own infant's cry, spoiled/not spoiled, sick/healthy, urgent/not urgent, distressing/not distressing, and arousing/soothing.

Subjects: Participants in the current investigation were comprised of 40 Caucasian parents in the low-middle socioeconomic class. Twenty of which had abused their infants and 20 who had no record of abusing their infants. Each group consisted of 14 mothers and 6 fathers.

Equipment: Infant cries were recorded with a directional microphone and then analyzed with a Voice Identification PM model Pitch Analyzer and a MicroSystems Lab analysis system.

Reliability: No reliability data was reported for the current investigation.

Results: Overall, as hyperphonation increased in the infant cries, similarity ratings to the subjects' own infants decreased. However, abusive parents did rate partially hyperphonated and hyperphonated cries as more similar to their own infants' cries than did nonabusive parents. The investigators also found that "...abusive parents did not distinguish between phonated and partially hyperphonated cries in their ratings..."

Conclusions: The investigators concluded that hyperphonation in infant cries is likely to play a role in the development of parental abuse of infants. They also

maintain that "...abusive parents are able to differentiate semantically among emotional signals, even within the class of social behavior categorized as cries." Further research is warranted to determine the nature and extent of the interaction of parental roles, infant roles, and the environmental factors that lead to child abuse.



Citation: Zeskind, P. S. (1987). Adult heart-rate responses to infant cry sounds. British Journal of Developmental Psychology, 5, 73-79.

Purpose: "...to examine whether adult heart-rate responses parallel the differential dimensions underlying the perceptions of low and high risk infant cries..."

Methodology:

Procedures: Participants' heart rates were recorded as they were presented with 16 tape-recorded pain cry sounds of high and low risk infants in 1 of 2 random orders.

Subjects: Participants were comprised of 30 adult college students with no professional or parental experience with children. Fifteen participants were male and fifteen were female.

Equipment: Recordings of infant cries were played on a Marantz PMD 360 stereo tape deck and Technics EAH-810 stereo headphones. Beckman miniature electrodes were used in conjunction with a Grass Model 7 Polygraph and cardiometer to record heart rate.

Reliability: No reliability data was reported for the current investigation.

Results: Cry sounds from high risk infants elicited greater absolute heart-rate change from baseline than the cry sounds of low risk infants.

Conclusions: The investigator concluded that "...normal pain cries were rated along one perceptual dimension describing the aversive nature of the cry sound, and the high pitched pain cries were perceived along two orthogonal dimensions—one indicating that the cry was aversive, the other that the infant sounded sick." Also, it is suggested that the development of the infant with a high pitched cry may be influenced by adult responses which is signified by different heart rate reactions. The investigator states the need for further study of individual differences in infant behavior and individual differences in adult behavioral responses to infant behavior in order to fully understand the relationships among infant development, cry type, adult perceptual reactions, heart-rate, and physiologic reactions.

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