


**PERCEPTION OF INFANT CRY : EFFECTS OF CONTEXTUAL
PRESENTATION AND SELF-REPORTED CHILDHOOD PHYSICAL ABUSE**

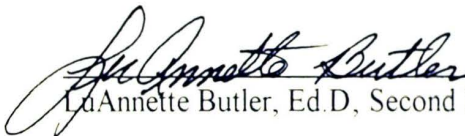
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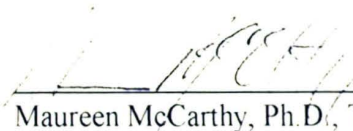
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Perception of Infant Cry: Effects of Contextual Presentation
and Self-reported Childhood Physical Abuse

A Thesis

Presented for the

Master of Arts

Degree

Austin Peay State University

Sharon Elizabeth McGregor

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Abstract

Empirical evidence reveals that both child abusers and individuals with high child abuse potential respond with greater physiological arousal to infant crying compared to nonabusive and low-risk individuals, respectively. This same infant cry literature reports mixed findings regarding abusive and high-risk individuals' self-reported reactions to infant crying. Unlike these previous studies which informed participants that the cry was a recording, this study led participants to believe that the cry was coming from an infant in the adjacent room. This more naturalistic cry presentation reduced the chances that participants' perceptions of the cry were influenced by their knowledge that the infant on the recording was not present and demanding any assistance. This study was also different from previous literature in that survivors rather than perpetrators of physical abuse were used as participants. One of the two general hypotheses was that participants who reported higher rates of childhood physical abuse would perceive the infant cry more negatively than participants with lower self-reported rates of physical abuse. The other hypothesis was that participants who disclosed higher rates of childhood physical abuse would demonstrate greater mood change as a result of exposure to the infant cry. None of these hypotheses were supported by the data.

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Empirical evidence reveals that both child abusers and individuals with high child abuse potential respond with greater physiological arousal to infant crying compared to nonabusive and low-risk individuals, respectively. This same infant cry literature reports mixed findings regarding abusive and high-risk individuals' self-reported reactions to infant crying. Unlike these previous studies which informed participants that the cry was a recording, this study led participants to believe that the cry was coming from an infant in the adjacent room. This more naturalistic cry presentation reduced the chances that participants' perceptions of the cry were influenced by their knowledge that the infant on the recording was not present and demanding any assistance. This study was also different from previous literature in that survivors rather than perpetrators of physical abuse were used as participants. One of the two general hypotheses was that participants who reported higher rates of childhood physical abuse would perceive the infant cry more negatively than participants with lower self-reported rates of physical abuse. The other hypothesis was that participants who disclosed higher rates of childhood physical abuse would demonstrate greater mood change as a result of exposure to the infant cry. None of these hypotheses were supported by the data.

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CHAPTER I

LITERATURE REVIEW

Introduction

Child maltreatment is a ubiquitous problem, occurring within the United States and across the globe (Champion, 1999; DeWit, MacDonald, & Offord, 1999; Dietz et al., 1999; Dodge, Pettit, Bates, & Valente, 1995; Fantuzzo, Sutton-Smith, Atkins, & Myers, 1996; Kozu, 1999; Larzelere & Johnson, 1999; Meston, Heiman, Trapnell, & Carlin, 1999; National Center on Child Abuse and Neglect, 1996; Peltzer, 1999; Roosa, Reinholtz, & Angelini, 1999; Wingood & DiClemente, 1997). The US Advisory Board on Child Abuse and Neglect (1993) has pronounced child maltreatment a national emergency. According to the National Center on Child Abuse and Neglect (NCCAN, 2000), 1,100 children died from child maltreatment in the United States in 1998; in other words, approximately 1.6 child-abuse-related fatalities occurred for every 100,000 American children. During this same year, 2,806,000 reports of child maltreatment were received by child protective service agencies across the United States, of which, 532,063 were confirmed for child maltreatment (NCCAN, 2000).

The congressionally mandated Executive Summary of the Third National Incidence Study of Child Abuse and Neglect (NIS-3; U.S. Department of Health and Human Services, 1996) reported an increase in the incidence of child maltreatment in the United States since 1986, when the last executive summary of child abuse and neglect, the NIS-2, was conducted. The NIS-3 estimated that there were 1,553,800 maltreated children in the United States in 1993, whereas the NIS-2 estimated that there were 931,100 maltreated children in 1986. These figures indicate approximately a 67% increase in the estimation of

child maltreatment from 1986 to 1993. Moreover, the 1993 estimation of child maltreatment represents approximately a 149% increase over the 1980 estimation of child maltreatment, made in the NIS-1. Clearly, either child maltreatment is becoming a mounting epidemic in our society or awareness of child maltreatment is increasing. Either way, child maltreatment is an ominous dilemma, requiring further study.

Child Maltreatment

Definition

Child maltreatment, otherwise known as child abuse and neglect (Thompson, 1995; Wiehe, 1992), is intentional or avoidable behaviors or conditions which are actually or potentially harmful to a child's physical, cognitive, social, or emotional development (Gough, 1996; Iverson & Segal, 1990). Child maltreatment is composed of psychological abuse, physical abuse, sexual abuse, and neglect (NCCAN, 1992; Wissow, 1995). The focus of this research will be on physical abuse. Physical abuse is defined as behavior (e.g., striking, burning, cutting, biting, or shaking) that is intentionally inflicted upon a child and which causes the child physical pain or harm (Thompson, 1995; Wiehe, 1992).

Theory and etiology

Parke and Collmer (1975) reviewed three classical perspectives on the etiology of child maltreatment: the psychiatric, the sociological, and the social situational or transactional perspective. The psychiatric perspective theorizes that pathological characteristics of the perpetrator result in child maltreatment. The sociological perspective theorizes that stressful variables in the perpetrator's environment result in child maltreatment. The transactional perspective theorizes that child maltreatment ensues from

an interaction of perpetrator characteristics, victim characteristics, and a stressful environment.

Consistent with a transactional perspective, Belsky (1980) proposed that the etiology of physical child abuse can best be explained as resulting from the interaction of four systems (i.e., society, community, family, and individual). Some examples of causal variables at the societal level include: excessive levels of societal violence; public acceptance of corporal punishment as a valid form of discipline; cultural belief that children are the property of parents; and denigration of the child care role. Some examples of causal variables at the communal level include: lack of social network; poor neighborhood quality; poverty; unemployment; and occupational stress. Some examples of causal variables at the familial level include: match between parent and child; marital discord; single-parent family; economic strain; social isolation; and household overcrowding and disorganization.

At the individual level, Belsky (1980, 1993) focused on abuse-eliciting characteristics of both perpetrators (e.g., childhood history of abuse; minimal experience with children; low tolerance of stress; negative reactivity; negative attributional style; low self-esteem; and young age combined with multiple offspring) and victims (e.g., difficult temperament; physical handicap; prematurity; and young age). Belsky (1980, 1993) noted that having one or more of these predisposing characteristics does not guarantee physical abuse or neglect. The course of physical abuse and neglect is determined by the interaction of multiple factors; any number of variable combinations can potentially result in child maltreatment. Consequently, there is no fixed formula of variables that equates to abuse and neglect (Belsky, 1980, 1993). The primary focus of this study is directed toward

Belsky's fourth system, the individual system (i.e., perpetrator and victim characteristics), and its contribution to the physical abuse of children.

Infant Characteristics that Contribute to Abuse

As noted above by Belsky (1980, 1993), and in another article by Malkin and Lamb (1994), younger children, especially infants, are at an increased risk for physical abuse. According to the NCCAN (1996), 47% of substantiated cases investigated by child protective services agencies across the United States in 1994 involved children whom were 6 years old or younger. In this 1996 NCCAN report, the highest percentage of maltreated children were less than one year old. Frodi (1981) conducted a literature review on infant characteristics that contribute to child abuse. She concluded that preterm, temperamentally difficult, mentally retarded, and physically handicapped infants are at higher risk for child abuse relative to normal infants.

Frodi (1981, 1985) also referred to anecdotal evidence which suggests that infant crying is often a contributing factor in child abuse. Schmitt (1987) stated that colic is the most common cause of physical abuse in infants. Even Brazelton (1985) noted that incessant crying can potentially lead to child abuse. Unfortunately, the majority of the literature on infant crying and its contribution to child abuse is based on case studies or conjecture (e.g., Frodi, 1981, 1985; McIntosh, Shanks, & Witworth, 1994). The exception to this is an empirical study conducted by Brewster et al. (1998) who investigated 32 cases of infanticide resulting from physical abuse. The authors found that 58% of the perpetrators reported that crying had contributed to the fatal abuse of their infants. Based on this study, infant crying appears to be capable of contributing to physically abusive behavior by some adults. But why might infant crying cause such an aggressive reaction?

Theories Regarding How Crying Contributes to Infant Abuse

Murray (1979) suggested that infant crying elicits strong emotional arousal in listeners that, in turn, can result in either constructive or destructive behaviors. Caretakers may attempt to avoid this emotional arousal by ignoring the crying infant and distancing themselves away from the cry. However, after excessive exposure to the crying, the prolonged emotional arousal may become unbearable to some caretakers. In order to cease this intense emotional arousal, a caretaker's response to the crying infant may shift from an altruistic to an egoistic motivation. This egoistic motivation may result in avoidance of and/or aggression towards the infant.

Frodi and Lamb (Frodi, 1981, 1985; Frodi & Lamb, 1980b), elaborating on Murray's idea, described an explanatory model which proposed that child abuse can occur when an already aroused individual is exposed to an aversive stimulus, such as a crying infant. The listener may perceive the infant cry as aversive either because the cry is actually aversive due to unusual acoustic features generated by the infant or because of characteristics within the listener, or even a combination of both. These characteristics within the listener may be congenital or they may have developed through interaction with the infant. Likewise, the infant characteristics can be congenital or they may have developed throughout infancy, perhaps even being shaped by ongoing child abuse or characteristics within the caregiver (Frodi, 1981; Frodi & Lamb, 1980b).

Whatever the cause of the crying (e.g., medical, temperamental, or poor parenting response), the crying may provoke an aggressive response from the listener. The more aversive the stimulus is, the less sympathy it will elicit and the more aggression it will evoke (Frodi, 1981; Frodi & Lamb, 1980b). In some cases, the aversiveness of the cry

may become intolerable, and the listener may aggress against the cry in an attempt to relieve their own frustration and distress; consequently, quelling the empathetic response and choosing instead to react egoistically. Even after the aversive stimulus ceases, the cry, as well as the infant, may continue to be perceived as aversive through the process of conditioning. Therefore, the infant may continue to be maltreated, and thus further develop behaviors that may contribute to their abuse (Frodi, 1981, 1985; Frodi & Lamb, 1980a). In short, the perception of infant cries may be formed based on the bi-directional interaction between the infant and the caregiver.

Infant Crying

Definition

Before further exploring the aversive nature of the infant cry, a definition of infant crying is appropriate. At the physiological level, infant crying is a seemingly simple behavior created by the complex interaction of the central nervous system, peripheral nervous system, respiratory system, and many distinct muscles (Golub & Corwin, 1985). Yet, there is more to the infant cry than merely the coordination of biological systems.

Numerous authors, as early as Darwin, have attempted to explain the meaning of crying. Darwin (1855/1955) wrote 30 pages describing the process of weeping in infants and children. He proposed that children cry as a means of expressing their needs, such as hunger or pain, to their caregivers. Many authors agree that crying is a form of communication used by infants to express their needs (Bax, 1985; Lester, 1985; Zeskind & Huntington, 1984; Zeskind & Marshall, 1988). Boukydis (1985) described infant crying as an adaptive behavior used by infants to elicit help from caretakers. Other authors have noted that infant crying is an attachment behavior which is important for the survival of

the infant, and consequently the species (Lummaa, Vuorisalo, Barr, & Lehtonen, 1998; Nelson, 1998; Zeskind, 1985). Lester (1985) reported that, for an infant, crying is the highest possible state of arousal, often functioning to release tension. Definitions and theories of infant crying, which are not necessarily mutually exclusive, abound.

Theories of infant crying

Murray (1985) reviewed three salient theories on the function of infant crying: the releaser model, the aversive stimulus model, and the empathy model. The releaser model stems from ideas first proposed by Bowlby (1969, 1973) and Ainsworth (1969). The releaser model views infant crying as a survival mechanism that developed with the evolution of our species. Infant crying is seen as a distress signal that originally evolved to promote proximity between caregivers and their infants in order to protect the infants from predators. In other words, our infant ancestors had an optimal chance of surviving, and thus procreating and passing on their genes, if they remained close to their caretakers. Accompanying the infant cry, a reciprocal mechanism evolved in adults, assuring that they would respond with arousal when an infant cried. The releaser model proposes that this reciprocal mechanism in adults is a “stereotyped motor response” which is activated via infant crying. In this context, infant crying is seen as a unique stimulus that induces an involuntary, reflexive reaction in the listener (Murray, 1985).

On the contrary, infant crying is not viewed as a unique stimulus in the aversive stimulus model (Murray, 1985). Rather, infant crying is considered to be analogous to any other noxious sound. Therefore, according to the aversive stimulus model, adults respond to infant crying as they would any other noxious sound. Adults attempt to alleviate their

own cry-induced distress whether that includes calming the baby, avoiding the baby, or aggressing against the baby (Murray, 1985).

The empathy model (Hoffman, 1975) suggests that adults usually react to infant crying out of empathy, not because of an egoistic motivation. In other words, adults want to alleviate the infant's distress, rather than their own distress. Unlike the other two models, the empathy model has a cognitive component, allowing adults to evaluate the infant's distress cues and help accordingly. However, as Hoffman (1977) noted, not all adults respond empathetically to crying infants. Crying may overwhelm some adults, and consequently they may respond to the infant with avoidance or aggression.

Murray (1985) conducted three studies to test these theories of infant crying (i.e., the releaser model, the aversive stimulus model, and the empathy model). She found the greatest support for the empathy model. Her studies demonstrated that infant crying is a unique stimulus, capable of evoking greater physiological arousal in listeners than machine or animal noises—a finding which does not support the aversiveness model. Despite similar levels of physiological arousal, increases in childcare experience resulted in decreases in self-reported ratings of aversiveness and increases in self-reported ratings of sympathy. Although inexperienced listeners tended to rate infant crying as similar in aversiveness to machine and animal noises, experienced listeners did not follow this pattern, and at times rated infant cries as less aversive than the other noises. This finding suggests that there is a cognitive component involved in the evaluation of infant cries—a finding which is in support of the empathy model. This cognitive component allows for an explanation of listeners choosing to respond either egoistically or altruistically to infant cries, despite comparable levels of physiological arousal.

Research Supporting the Aversive Quality of Infant Cries

Current research supports the notion that infant crying is typically perceived to be aversive by adults (Frodi, 1981, 1985; Frodi & Lamb, 1980a; Frodi & Senchak, 1990). As noted in the above article by Murray (1985), infant crying can result in physiological arousal in listeners. Boukydis (1985) found that infant crying caused an increase in skin potential responses in listeners. Zeskind (1987) reported similar infant cry effects.

Zeskind (1987) sampled 30 college students, 15 males and 15 females, with no professional or parental experience with children. Participants' heart rate was monitored every second while they individually listened to a series of eight high risk cries and eight low risk cries. Analysis revealed that the heart-rate patterns of response to low risk infant cries and high risk infant cries were greater than what would be expected by chance. The cries of low risk infants elicited mostly heart rate accelerations, while the cries of high risk infants elicited both heart rate accelerations and decelerations. These results demonstrate that infant crying is a powerful stimulus, capable of affecting listeners' physiological functioning.

Stasiewicz and Lisman (1989) also conducted research substantiating the effect of infant crying on listeners. The authors found that infant crying increased alcohol consumption in a sample of 32 male, nonparent undergraduates. Participants were administered the Adult-Adolescent Parenting Inventory (AAPI; Bavolek, Kline, McLaughlin, & Publicover, 1979) in order to discriminate between participants at high and low risk for committing child abuse. Unfortunately, the authors only introduced one validity study supporting the AAPI and no reliability data was presented. Therefore, the psychometric properties of the AAPI are ambiguous. Participants who scored in the top

30% of the AAPI distribution were placed in the high risk group; participants who scored in the bottom 38% of the AAPI distribution were placed in the low risk group. Both groups of participants were invited back for the second half of the study.

During the second half of the study, participants' baseline blood pressure was measured twice. Participants' blood pressure was measured for a third time while they listened to either a recording of a medically-at-risk infant or a smoke alarm. After exposure to either of the two randomly assigned stimuli, participants rated the cry or the smoke alarm on degree of aversiveness. Participants then engaged in a taste test involving alcohol. Finally, participants' blood alcohol level was measured using a breath test.

Results showed that, regardless of risk group, participants who were exposed to the infant crying stimulus consumed significantly ($p < .025$) more alcohol ($M = 206.00$ ml) compared to participants exposed to the smoke alarm stimulus ($M = 95.68$ ml).

Self-reports revealed that participants who listened to the infant cry disclosed significantly higher levels of distress, arousal, and aversiveness. Analysis of blood pressure rates did not reveal any significant findings. Stasiewicz and Lisman (1989) concluded that the infant cry is a strong stimulus which can increase alcohol consumption in undergraduate males.

Limitations of this study include the small sample size. Additionally, the authors only used the cry of a medically-at-risk infant, and research has found that this population of infants tends to elicit higher levels of aversiveness than healthy infants (Zeskind, 1983, 1987).

Like Stasiewicz and Lisman (1989), Morsbach, McCulloch, and Clark (1986) discovered that infant crying can aversely effect listeners. Specifically, Morsbach et al. found that infant crying decreased participants' ability to concentrate. The participants, 45 mothers of infants less than one year old, were divided into three groups: exposure to the

cry of a healthy, full-term infant; exposure to the cry of a brain-damaged infant; and exposure to machine noise. Participants listened to one of these three stimuli while they completed a concentration task. Results demonstrated that both infant crying conditions decreased participants' level of concentration compared to participants who were exposed to the machine noise condition. The authors noted that a significant difference in participants' level of concentration between the two cry conditions was not found. One of the strengths of this study is the inclusion of two infant cry conditions; this is noteworthy because among infant cries, there is a range of variability of acoustic features which can contribute to perceptions of aversiveness (Boukydis, 1985; Crowe & Zeskind, 1992).

To summarize, the studies presented in this literature review lend credibility to the notion that infant crying is aversive to listeners, as Frodi (1981, 1985) and Murray (1979) proposed. Morsbach et al. (1986) found that infant crying decreased mothers' ability to concentrate. Stasiewicz and Lisman (1989) found that infant crying increased alcohol consumption in male undergraduates. Stasiewicz and Lisman also found that participants who listened to infant crying reported higher levels of distress, arousal, and aversiveness compared to participants who listened to a smoke alarm. In addition, other studies have reported that infant crying results in physiological changes in listeners (e.g., Boukydis, 1985; Zeskind, 1987). Murray (1985) found that listeners had greater physiological arousal to infant cries than to either animal or machine noises. In short, infant crying appears to be aversive to most listeners.

Listener and Infant Characteristics that Contribute to Reactions of Cry Aversiveness

Some infant cries are perceived to be more aversive than others (Frodi, 1985). As Crowe and Zeskind (1992) noted, there are characteristics both within the listener and the

infant, including the cry produced by the infant, which can influence listeners' interpretation of a cry's aversiveness.

Infant characteristics

Various authors have reported that the acoustic features of infant cries can influence listeners' perceptions of the cries. For example, cries with high fundamental frequencies, or pitch, have often been found to be more aversive to listeners than normal cries (Bisping, Steingrueber, Oltmann, & Wenk, 1990; Boukydis, 1985; Crowe & Zeskind, 1992). Zeskind and Marshall (1988) found that as the peak, mean, and variability fundamental frequency of infant cries increased, so too did listeners' perceptions of how urgent, distressing, arousing, and sick-sounding the cries were. Zeskind and Shingler (1991) reported that hyperphonated cries, or cries with high fundamental frequencies, more often resulted in distressing, arousing, and noxious self-reports from listeners. Likewise, Dessureau, Kurowski, and Thompson (1998), as well as Crowe and Zeskind, found that participants rated infant cries as more urgent, grating, arousing, aversive, and distressing, as the fundamental frequency of the cries increased. Crowe and Zeskind further reported that listeners exhibited lower average skin conductance levels in response to phonated cries compared to hyperphonated cries. In addition to fundamental frequency, Dessureau et al. found that long cries with long pauses were also perceived by most participants as urgent. Therefore, current research demonstrates that acoustic features, such as fundamental frequency, may effect listeners' ratings of cry aversiveness.

Certain infants are more likely than other infants to produce cries with high fundamental frequencies. Infants with chronic medical problems frequently emit hyperphonated cries. For example, Frodi and Senchak (1990) found that the cries of

infants with asphyxiation, either with or without brain damage, had the highest mean, minimum, and maximum fundamental frequencies, followed by infants with *maladie du cri du chat*, and then normal infants, and finally infants with Down syndrome. The authors noted that the highest pitched cries resulted in higher self-reported ratings of aversiveness and more negative observer-rated affect compared to lower pitched cries. Thus, current research supports the notion that cries from infants with health problems, with the exception of Down syndrome, can elicit more negative perceptions than cries from healthy infants (Frodi & Senchak, 1990).

Like some infants with chronic medical problems, healthy infants with pre- or perinatal obstetrical complications, or high-risk infants, have also been reported to have cries with high fundamental frequencies, as well as high ratings of aversiveness by listeners (Lounsbury & Bates, 1982). Zeskind and Lester (1978) studied healthy neonates with obstetrical complications and found that the cries of high-complication infants had higher fundamental frequencies than the cries of low-complication infants. Additionally, the cries of high-complication infants were perceived by listeners as more urgent, grating, sick-sounding, arousing, piercing, discomforting, aversive, and distressful than the cries of low-complication infants. Zeskind (1983) also found that participants rated the cries of high-risk infants as more distressing, urgent, arousing, and sick-sounding than the cries of low-risk infants. Zeskind and Huntington (1984) again found that listeners perceived the cries of high-risk infants as significantly more aversive and urgent relative to the cries of low-risk infants. In another study, Zeskind (1987) reported that high risk infant cries elicited greater heart rate change per second in participants compared to low risk infant

cries. These studies support the notion that high-risk infants produce hyperphoned cries which are perceived as more aversive than the cries of low-risk infants.

Similarly, premature infants often produce hyperphoned cries (Frodi & Lamb, 1980a; Zeskind, 1985). The cries of premature infants are frequently perceived to be more aversive than the cries of full-term infants (Frodi, 1981, 1985). Thoden, Jarvenpaa, and Michelsson (1985) found a positive relationship between prematurity and fundamental frequency. Specifically, they found that the more premature an infant, the higher the fundamental frequency of their cry. Overall, prematurity, obstetrical complications, and medical problems all seem to effect listeners' ratings of cry aversiveness.

Some studies have also found that the age of the infant effects ratings of cry aversiveness. Leger, Thompson, Merritt, and Benz (1996) found that 6-month-old infants had cries with higher fundamental frequencies compared to 1-month-old infants. Leger et al. also reported that the cries of 6-month-old infants were perceived by listeners as more intense sounding- more distressed, angry, and fearful.

In addition to chronological age, gestational age, and health status of the infant, temperamental differences amongst infants also seem to be associated with the acoustic features of cries. Boukydis and Burgess (1982) found that cries from temperamentally difficult infants had higher fundamental frequency peaks, more pauses, and longer duration of pauses than the cries of infants with easy and average temperaments. Participants exposed to the difficult temperament cries exhibited the highest skin conductance levels. The cries from difficult temperament infants also elicited more self-reported feelings of anger and irritation, as well as the belief that the infant was spoiled. The difficult infant cries, in general, received the most extreme responses from listeners (Boukydis &

Burgess, 1982). Another study by Boukydis (1985) reported that the cries of difficult infants were rated by participants as more grating, piercing, arousing, and aversive compared to cries emitted by infants with average or easy temperaments. Lounsbury and Bates (1982) found that infants rated by their primiparous mothers as temperamentally difficult emitted cries with higher peak fundamental frequencies and longer pauses than cries from infants rated as temperamentally easy by their primiparous mothers. The authors also found that the cries of difficult and average temperament infants evoked greater self-reported anger and irritation from unrelated mothers than the cries of easy temperament infants.

In review, temperament, age, prematurity, pre- or perinatal obstetrical complications, health status, and fundamental frequency, all seem to influence ratings of aversiveness by listeners. These variables also seem to be associated with child abuse. As mentioned earlier, Frodi (1985) conducted a literature review and found that premature, temperamentally difficult, and physically handicapped infants are at higher risk for child abuse than normal infants. Additionally, Zeskind (1985) proposes that the aversive cries of high-risk infants may evoke either a nurturing or an abusive response from caretakers. Zeskind (1987) suggests that hyperphonated cries can lead to physiological arousal which, in turn, might potentially lead to child abuse. Zeskind and Shingler (1991) found that both abusive and nonabusive parents perceived hyperphonated cries as most likely to lead to abuse, followed by partially hyperphonated cries, and then phonated cries. The combination of an infant who produces hyperphonated cries together with a caretaker who responds strongly to aversive and stressful stimuli may lead to child abuse (Crowe & Zeskind, 1992). Both the infant and the acoustic characteristics of his/her cry can influence

the perception of cry aversiveness, and potentially the occurrence of child abuse.

However, listener characteristics can also effect the perception of cry aversiveness. As stated by Boukydis (1985), the perception of infant cries requires two individuals, the infant and the listener.

Listener characteristics

Disparate findings have been reported regarding the effects of listeners' gender on ratings of aversiveness. Some authors have observed that the gender of listeners does not seem to effect their perception of cry aversiveness (Bisping et al., 1985, 1990; Leger et al., 1996). For example, males' and females' self-reported ratings and physiological arousal to infant cries were found to be similar in three studies conducted by Murray (1985). Additionally, Boukydis (1985) did not find gender differences on measures of skin conductance levels. However, he did find that males were more likely to self-report feelings of anger and irritation in response to infant crying; males were also more likely to state that the infant was spoiled. Pruitt and Erickson (1985) reported that males exhibited greater levels of skin conductance in response to infant cries compared to females. In all, there seems to be conflicting data regarding the influence of listeners' gender on perceptions of cry aversiveness.

There are also mixed findings regarding the effects of child care experience on listeners' perceptions of cry aversiveness. Murray (1985) found that increases in listeners' child care experiences resulted in decreases in their self-reported ratings of cry aversiveness and increases in their self-reported ratings of sympathy, despite uniform levels of physiological arousal. To the contrary, Boukydis and Burgess (1982) found that primiparous parents had the highest overall levels of skin conductance in response to

normal infant cries, followed by nonparents and then multiparous parents. In another study, Zeskind and Lester (1978) found that parents, compared to nonparents, rated infant cries as less aversive. However, Leger et al. (1996) reported that both nonparents and parents rated infant cries similarly. Overall, there appears to be some conflicting data regarding the effects of parity and child care experience on perception of infant crying.

Abusive and high-risk for abuse individuals' reactions to infant cries

Another listener characteristic that has the potential to influence reactions to infant crying is the listener's tendency to behave in an abusive manner towards children. The five studies reviewed in the following pages (Friedrich, Tyler, & Clark, 1985; Frodi & Lamb, 1980b; Milner, Halsey, & Fultz, 1995; Pruitt & Erickson, 1985; Zeskind & Shingler, 1991) explore the association between individuals with either a history of perpetrating child abuse or with high abuse potential and their reactions to infant cries. The studies demonstrate that abusers (Friedrich et al., 1985; Frodi & Lamb, 1980b) and individuals with high abuse potential (Pruitt & Erickson, 1985) exhibit greater physiological arousal in response to infant crying compared to nonabusive and low-risk individuals, respectively. However, mixed findings are reported amongst the five studies apropos of abusive and high-risk individuals' self-reported responses to infant crying.

Frodi and Lamb (1980b) conducted an experiment involving 14 abusive and 14 nonabusive mothers, all of whom were matched on age, marital status, social class, number of children, and age of children. Mothers in the abuse group had acknowledged abusing at least one of their children, who was of preschool age or younger at the time of the abuse. This method of participant selection provided a possible selection bias inasmuch as perpetrators willing to admit to abuse may differ from other perpetrators who are

unwilling to admit to abuse. Another possible confounding variable involved the recruitment of participants from different organizations. All the parents in the abuse group were recruited from Parents Anonymous, while all the parents in the control group were recruited from both the YMCA and a women's clinic. Although no formal hypothesis was given in the article, the authors stated that the purpose of the study was to determine whether child abusers react aberrantly to the smiles and cries of infants.

Participants watched two counterbalanced videotaped segments; one of an infant smiling and audibly cooing, and the other of an infant crying. Skin conductance, diastolic blood pressure, and heart rate were monitored before and during each videotaped segment. After viewing the segments, participants completed a mood adjective checklist (Frodi, Lamb, Leavitt, & Donovan, 1978) for both the smiling and crying infant.

Participants also answered three questions; the first pertaining to their overall like/dislike of the infant, the second pertaining to their desire to interact with the infant, and the third pertaining to their perception of how distressed the infant was.

Participants, in general, responded to the infant cry with more self-reported distress and physiological arousal relative to the infant smile. When comparing the two groups, participants in the child abuse group responded to the infant cry with more annoyance, as well as less sympathy and pleasantness, than participants in the nonabuse group. Abusers also reported being less attentive, happy, and pleasant, and more indifferent toward the smiling infant than nonabusers.

Abusers had higher diastolic blood pressure, skin conductance, and heart rate in response to the infant cry relative to nonabusers. Compared to nonabusers, abusers had higher levels of blood pressure and skin conductance in response to the infant smile.

Whereas nonabusers only showed physiological arousal to infant crying, abusers showed physiological arousal to both infant crying and smiling. In fact, nonabusers had heart rate deceleration in response to the smiling infant, but heart rate acceleration in response to the crying infant. On the other hand, abusers had heart rate acceleration in response to both the crying and the smiling infant. Donovan and Leavitt (1985) stated that a decrease in heart rate is often a sign that the listener is having an orienting response. The purpose of the orienting response is to maximize one's attention to a particular stimulus (Donovan & Leavitt, 1985). The authors further reported that an increase in heart rate is often a sign that the listener is having a defensive response, usually occurring in response to an intense stimulus. Overall, Frodi and Lamb (1980b) found that abusers reacted to both the smiling and crying infant with more physiological arousal and self-reported aversion compared to nonabusers.

Friedrich et al. (1985) divided a sample of 42 Caucasian mothers into three groups: physically abusive mothers ($n = 14$), physically neglectful mothers ($n = 13$), and low-income control mothers ($n = 15$). The physically abusive and neglectful mothers were recruited through state social service agencies that had substantiated cases of child physical abuse and/or neglect against the mothers. The control mothers, on the other hand, were recruited through a county welfare office. The authors noted that the control mothers did not have any substantiated cases of child maltreatment against them during the time they received financial assistance from the welfare office. Throughout the study, the experimenter was blind to each participant's group assignment.

While participants listened to a nine minute audio tape, their skin conductance level, heart rate, and finger blood volume were monitored. The audio tape consisted of

five segments of white noise, two segments of tone, and two segments of infant crying. The nine segments were presented to the participants in two fixed orders, after which participants completed six semantic differential scales in response to the infant cry stimulus (i.e., cry length, cry volume, age of child, irritability, anger, and demanding dimensions). Accordingly, some participants were not administered these scales directly after hearing the infant cry, inasmuch as they finished listening to the entire tape, which included tone and white noise, before they completed the six scales. Participants were found to be similar to one another on a number of demographic variables, except for one, number of children: Abusive and neglectful mothers were found to have more children than control mothers.

Analysis revealed that the control mothers rated the infant cry as less angry relative to ratings by abusive and neglectful mothers; ratings of anger by abusive and neglectful mothers did not differ. On the other hand, the abusive mothers rated the cry as less irritating and demanding, followed by the control mothers, and then the neglectful mothers. According to skin conductance levels, all three groups seemed to be initially aroused by the infant crying, although, both the abusive and neglectful mothers were less likely to habituate to the cry. Ironically, the neglectful mothers had higher skin conductance levels in response to the tone than to the infant cry. In contrast, the abusive and control mothers had the highest skin conductance levels in response to the infant cry than to either the tone or white noise. Murray (1985) found comparable results, reporting that listeners had greater physiological arousal to infant cries than to either animal or machine noises.

Overall, the control mothers appeared to respond to the infant crying with less physiological arousal and greater habituation than either the physically abusive or neglectful mothers. Furthermore, the physically abusive mothers tended to rate the infant cry as more angry compared to the control mothers. On the other hand, the physically abusive mothers also tended to rate the infant crying as less irritating and demanding than the control mothers (Friedrich et al., 1985). One of the limitations of this study involves the authors' failure to inquire about the control mothers' parental practices. This is an important step inasmuch as the only criteria for inclusion in the control group was that participants not have any substantiated cases of child maltreatment against them during the time they were receiving financial assistance from the welfare office. Obviously, this does not negate the possibility of child maltreatment having occurred within the control group since these mothers may have maltreated their children prior to receiving assistance from the welfare office. Additionally, many cases of child maltreatment are never brought to the attention of child protective services. Friedrich et al. noted that another limitation of this study involves its small sample size which limits the interpretation and generalizability of the results.

Zeskind and Shingler (1991) sampled 20 perpetrators of infant physical abuse and 20 comparison parents (28 mothers, 12 fathers) in order to ascertain whether physically abusive parents perceive infant cries differently than nonabusive parents. Both groups of participants were matched for gender, years of education, age of youngest child, and number of children. All participants were Caucasian and of low to middle socioeconomic status. The abusive parents were identified either by their own admission or because a state social service agency had substantiated physical abuse. The authors did not specify

whether the abuse was ongoing or when the last incident occurred. The fact that the abusive parents were recruited from two separate sources (i.e., self-identification and other-identification) is one of the strengths of this study. Another strength is that parents from the nonabuse group were recruited from parenting classes and support groups designed to address difficulties within the parent-child relationship. By recruiting nonabusive parents that had interactional problems with their children, like the parents in the abuse group, the authors potentially reduced the risk of introducing unnecessary confounding variables into the study. On the other hand, nonabuse was never substantiated within the nonabuse group.

In regard to the methodology of the Zeskind and Shingler study, participants listened to three types of cries: hyperphonated, partially phonated, and normally phonated. A total of 12 cries were presented in random order to the participants, after which, they responded to two questions: similarity to their own child and likelihood of the child being abused in the future. Participants then heard a second and third presentation of the same cries, but this time, the cries were attributed to either an abused infant or a nonabused infant. Each of these labels was randomly assigned to half the cries in the second presentation and then reversed during a third presentation. During these cry presentations, participants used a seven-point Likert scale to rate the cries according to five items (i.e., spoiled, sick, urgent, distressing, and arousing).

Cries labeled as coming from an abused infant were rated by both groups as being less spoiled, and more urgent and sick. As these abuse-attributed infant cries became more hyperphonated, ratings of arousal and distress by both groups increased. In general, hyperphonated cries were perceived, by both groups, as most likely to lead to abuse,

followed by partially hyperphonated cries, and then normally phonated cries. Analysis also revealed that parents in the physical abuse group rated hyperphonated and partially hyperphonated cries as more similar to their own infants' cries compared to parents in the nonabuse group. Surprisingly, physically abusive parents rated these same hyperphonated cries as less urgent than nonabusive parents. All in all, no significant differences were found between abusive and nonabusive parents' self-reported ratings of normally phonated cries; however, physically abusive parents found hyperphonated and partially phonated cries less urgent than nonabusive parents (Zeskind & Shingler, 1991).

Pruitt and Erickson (1985) sampled 61 nonparent Caucasians over the age of 30 years, all recruited via a newspaper advertisement. After administration of the Child Abuse Potential Inventory (CAP; Milner & Wimberley, 1979, 1980), a measure of physical child abuse potential, the top and bottom 33% of the CAP distribution were designated as the high physical abuse potential group and the low-risk group, respectively. The high-risk group consisted of 8 males and 14 females and the low-risk group consisted of 6 males and 16 females.

A week after administration of the CAP, both groups returned to the lab and observed two videotapes, presented in a counterbalanced order. One videotape had a smiling infant and the other had a crying infant. Before and during the videotaped presentations, participants' heart rate and skin conductance levels were monitored. After viewing each tape, participants filled out two questionnaires: The Mood Adjective Checklist and the Reaction to Infant Questionnaire. Both questionnaires were designed for this study; no psychometric data was presented for either questionnaire.

Participants in the low-risk group showed more heart rate variability across conditions, while participants in the high-risk group demonstrated more stable and consistent peak heart rate responses across all conditions. Participants in the low-risk group, relevant to participants in the high-risk group, demonstrated slower peak heart rate and greater peak skin conductance levels, both indicating a decrease in arousal. In all, the participants at high-risk for perpetrating physical child abuse appeared to be more physiologically reactive and defensive during all infant conditions, especially when the infant was crying. Unlike the significant findings reported for the participants' physiological reactions to infant crying, no significant differences were found on self-reported measures (Pruitt & Erickson, 1985).

Milner et al. (1995) sampled 45 mothers, recruited through two social service agencies, a public school, and a medical clinic. Participants were shown three videotaped segments of an infant-smiling, crying, and quiescent, all presented in a fixed order. For each of the three segments, participants answered a questionnaire inquiring about their emotional reactions to the infant (i.e., sadness, empathy, distress, hostility, happiness, and quietness). Then participants completed a questionnaire on empathy, as well as the CAP (Milner, 1986). Based on their CAP scores, participants were divided into two groups: high-risk ($n = 10$) and low-risk ($n = 10$) for perpetrating physical child abuse. Participants in both groups were matched for race, age, educational level, marital status, and number of children.

Analysis revealed that, as hypothesized, mothers at low-risk for perpetrating physical child abuse had more of an empathetic response towards the crying infant than high-risk mothers. The high-risk mothers also reported greater negative affect (i.e., more

distress and hostility, and less happiness, quietness, and empathy) in response to the crying infant. In general, mothers with high physical abuse potential, compared to low-risk mothers, had higher rates of self-reported negative affect in response to all infant conditions.

Summary

To summarize, infant crying appears to evoke greater physiological arousal (i.e., diastolic blood pressure, heart rate, and skin conductance) in both abusive mothers (Friedrich et al., 1985; Frodi & Lamb, 1980b) and male and female nonparents at high-risk for perpetrating physical abuse (Pruitt & Erickson, 1985), compared to nonabusive mothers and low-risk nonparents, respectively. On the contrary, mixed findings are reported regarding physically abusive and high-risk participants' self-reported responses to infant crying. Some studies (i.e., Friedrich et al., 1985; Frodi & Lamb, 1980b; Milner et al., 1995) found that perpetrators of child physical abuse and participants with high physical abuse potential disclosed greater aversion to infant crying (i.e., more annoyance, anger, distress, and hostility and less sympathy, pleasantness, happiness, quietness, and empathy) than nonabusive and low-risk participants. However, some studies (i.e., Friedrich et al., 1985; Zeskind & Shingler, 1991) reported the opposite: Physically abusive participants rated the infant cries as less aversive (i.e., less irritating, demanding, and urgent), compared to nonabusive participants. Still, other studies (i.e., Pruitt & Erickson, 1985; Stasiewicz & Lisman, 1989) were unable to find any differences between the two groups. The only studies unable to find any self-reported differences between the two groups consisted of nonparents at risk for perpetrating abuse, as opposed to parents with a history of perpetrating abuse.

Survivors' Reactions to Infant Cries

These previously reviewed studies all used perpetrators or individuals with high abuse potential as participants. It might be hypothesized that perpetrators and survivors of child abuse have similar reactions to infant crying based on the widely accepted notion that survivors of child abuse have a greater likelihood of becoming perpetrators relative to nonsurvivors. But before accepting this conclusion, it is important to review the intergenerational cycle of abuse literature to examine whether this widely-held belief is empirically validated.

Intergenerational cycle of abuse

Two critical reviews (Kaufman & Zigler, 1988, Oliver, 1993) reported that one-third of child abuse survivors will continue the cycle of abuse and become perpetrators themselves. Oliver further reported that another one-third of survivors will break this abuse cycle, while the remaining one-third of survivors will stay vulnerable to the possibility of becoming an abuser. It should be noted that numerous criticisms have been proposed regarding studies that attempt to measure the intergenerational transmission rates of child abuse.

Some authors (e.g., Zaidi, Knutson, & Mehm, 1989, Widom, 1989) have criticized the small sample sizes and nonrepresentative samples used in this type of research. Other studies (e.g., Kaufman & Zigler, 1988, Widom, 1989) have criticized researchers' reliance on self-report and retrospective measures. Another common criticism is the lack of control groups used in such studies, and consequently, the failure to establish baseline rates (Kaufman & Zigler, 1988; Oliver, 1993; Widom, 1989). Oliver (1993) and Kaufman and Zigler (1988) reported that they considered these criticisms when calculating their finding.

Based on the proposition that approximately one-third of survivors will become perpetrators, it can be hypothesized that about one-third of survivors will respond to infant crying in a manner similar to perpetrators when presented with infant crying. Unfortunately, only one study measuring survivors' reactions to infant crying (i.e., Casanova, Domanic, McCanne, & Milner, 1994) has been published.

Research measuring survivors' reactions to infant crying

Casanova et al. (1994) hypothesized that adult survivors of physical abuse would respond to a crying infant with more physiological reactivity and distress relative to a comparison group. Thirty Caucasian participants were divided into two groups, based on their responses to the Childhood History Questionnaire (Milner, Robertson, & Rogers, 1990). Thirteen mothers were placed in the survivor group and 17 mothers were placed in the comparison group. The two groups, matched on various demographic variables (i.e., age, education, marital status, and number of children), were both recruited from several day-care centers and social service agencies.

Participants were shown two videotaped segments. One segment commenced with a quiescent infant who began to smile and coo and eventually became quiescent once again; the other videotaped segment started with the same quiescent infant who, instead of smiling, began to cry and then became quiescent once again. After both videotaped segments, the mothers' self-reported emotional reactions to the three infant states were measured. Participants' heart rate and skin conductance levels were monitored before, during, and after each videotape presentation.

Whereas participants in the comparison group had a decrease in skin conductance ratings during the baseline period, participants in the survivor group did not have any

significant changes in skin conductance during the baseline period. This suggests that while participants in the comparison group were able to habituate to the experimental situation, participants in the survivor group were unable to do so. Ironically, while participants in the comparison group had an increase in skin conductance during the infant crying and no change in skin conductance during the infant smiling, participants in the survivor group had no change in skin conductance during the infant crying and an increase in skin conductance during the infant smiling. In other words, survivors demonstrated a reverse pattern of physiological reactivity in comparison to the response pattern displayed by the comparison group, suggesting that survivors of childhood physical abuse may be less responsive to negative emotions expressed by infants. No significant results for heart rate or self-report items were found for either group. Casanova et al. (1994) suggested that part of the reason for the marginal findings may be due to their definition of physical abuse which required just one incident of abuse rather than a chronic history of abuse.

Comparing the Survivor Research with the Perpetrator Research

Casanova et al.'s (1994) finding that survivors had difficulty habituating to the experimental situation is congruent with findings reported in the Friedrich et al. (1985) study. Nevertheless, the remaining physiological data reported by Casanova et al. is contradictory to the other studies described in this literature review inasmuch as Casanova et al.'s comparison group displayed increases in skin conductance levels during the infant crying condition, while the survivor group had no changes in skin conductance levels during these same infant cries. This finding is contrary to findings presented in the perpetrator and infant cry literature which notes that abusive and high abuse potential individuals react to infant crying with physiological arousal. However, similar to other

studies in the perpetrator and infant cry literature (i.e., Pruitt & Erickson, 1985; Stasiewicz & Lisman, 1989), Casanova et al. were unable to find any significant results regarding participants' self-reported responses to infant cries.

Limitations

The Casanova et al. (1994) study and the perpetrator and infant cry literature share many corresponding limitations. Most of these studies have small sample sizes. Many of these studies are also not representative, especially in regard to gender, race, and socioeconomic status. Additionally, selection bias, a weakness often accompanying studies attempting to measure child abuse, is present in many of these studies. Reliance on retrospective reports is another limitation, but is difficult to prevent due to the ethical constraints of child abuse research.

One of the most salient limitations among the Casanova et al. (1994) study and the perpetrator and infant cry studies involves the method of cry presentation. In all these studies, participants knew that the infant cry was recorded on tape. As such, participants must have realized that the infant on the recording was not in any present danger or was not demanding any assistance from the participants. Participants could have included this rationalization in their self-report measures. This explanation may help explain why abusive and high abuse potential participants had physiological arousal at the sensory level, but findings were mixed regarding their self-report responses. In other words, abusive and high abuse potential participants may have curtailed their self-report responses based on their contextual knowledge that the cry was not presently being emitted from an infant.

Another possible explanation for the incongruence of physiological and self-reported reactions is that physiological arousal is easier to measure objectively and accurately compared to the assessment of emotional reactions. Additionally, some participants, labeled as being abusive or at risk for abusing, may have responded to self-report items based on demand characteristics, according to how they thought the experimenter wanted them to respond. This is especially true considering that the participants in the previous studies knew that their responses to the infant cry were being assessed. Compared to self-reported aversion, participants would have been less able to manipulate their physiological arousal.

Hypotheses

The purpose of this study was to address the first explanation for the incongruity between physiological and self-reported reactions to infant crying; namely, the notion that participants' knowledge about the presentation of a recorded cry may potentially alter their self-reported responses regarding cry aversiveness. This study led participants to believe that an infant was actually crying in an adjacent room. It was hypothesized that participants who reported higher rates of childhood physical abuse would perceive the infant cry as engendering more negative characteristics (i.e., Urgent, Grating, Arousing, Piercing, Aversive, and Distressing) relative to participants with lower rates of physical abuse. It was also hypothesized that participants who disclosed higher rates of childhood physical abuse would report more anxiety and hostility in response to the infant cry. The basic variables of this study are childhood physical abuse and self-reported aversion to infant crying.

CHAPTER II

METHOD

Overview

In order to test the incongruity between abusive and high abuse potential participants' physiological and self-reported reactions to infant crying, a change in methodology from previous studies was implemented. Specifically, unlike previous studies which informed participants that the infant cry was being emitted from an audio or videotape, this study led participants to believe that a cry was currently coming from an infant in an adjacent room, even though this cry was still recorded. As such, mild deception was employed inasmuch as participants were told that the cry was merely happenstance. In an attempt to mask the infant cry as a component in this study, participants were also told that the purpose of this study was to measure computer anxiety. A distracter task, the Stroop Color-Word Test, was administered on a computer while the recording of the cry was played.

The general hypothesis was that participants with higher rates of childhood physical abuse would perceive the infant cry more negatively than participants with lower rates of physical abuse. Childhood physical abuse was assessed using the physical abuse scale on the Childhood Trauma Questionnaire. Self-reported aversion to infant crying was assessed via both the Profile of Mood States-Bipolar Form (POMS-BI) and Zeskind's infant crying scales. On the POMS-BI, only two of the scales (i.e., Composed-Anxious and Agreeable-Hostile) were analyzed.

Eight detailed hypotheses were proposed. The first six hypotheses assessed the relationship between the Zeskind scales and the CTQ. First, it was hypothesized that

participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Urgent-Not Urgent scale relative to participants with lower scores on the CTQ Physical Abuse scale. Second, it was hypothesized that participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Grating-Pleasing scale relative to participants with lower scores on the CTQ Physical Abuse scale. Third, it was hypothesized that participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Arousing-Soothing scale relative to participants with lower scores on the CTQ Physical Abuse scale. Fourth, it was hypothesized that participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Piercing-Not Piercing scale relative to participants with lower scores on the CTQ Physical Abuse scale. Fifth, it was hypothesized that participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Aversive-Nonaversive scale relative to participants with lower scores on the CTQ Physical Abuse scale. Sixth, it was hypothesized that participants with higher scores on the CTQ Physical Abuse scale would obtain higher scores on the Zeskind Distressing-Not Distressing scale relative to participants with lower scores on the CTQ Physical Abuse scale.

The last two hypotheses assayed the relationship between the CTQ and two of the POMS-BI scales. The seventh hypothesis was that participants with higher scores on the CTQ Physical Abuse scale would have a larger discrepancy between their Composed-Anxious scores from the first and second administration of the POMS-BI compared to participants with lower scores on the CTQ physical abuse scale. The eighth hypothesis was that participants with higher scores on the CTQ Physical Abuse scale

would have a larger discrepancy between their Agreeable-Hostile scores from the first and second administration of the POMS-BI compared to participants with lower scores on the CTQ physical abuse scale.

Participants

One hundred participants were recruited from a small southern liberal arts university. Seven of these participants scored a three on the CTQ validity scale designed to reduce false negatives; consequently, their data were excluded from statistical analyses. Participants were recruited via two means. First, sign-up sheets describing the study were posted on the psychology bulletin board. Second, the experimenter went to undergraduate psychology classes, asking students to participate. For their participation, students were offered extra credit slips, which were accepted or declined at the discretion of their instructor. This study was approved by the university's institutional review board before the recruitment of participants. All participants were treated according to the ethical standards published by the APA (American Psychological Association, 1992).

Materials

Infant cry stimulus

The cry was procured from a full-term infant, three days after his spontaneous vaginal birth. His 20-year-old mother admitted to using tobacco, alcohol, and cocaine during his pregnancy. She had already lost custody of three older children due to her drug use. The cry was tape-recorded during an administration of the Brazelton Neonatal Behavioral Assessment Scale (Brazelton, 1983). The audio tape of this cry was then transferred to a Compact Disc. One minute after participants began the Stroop distracter

task, this 38.76 second CD recording was cued via a remote control. The cry recording was played at a constant volume from an adjacent room.

Stroop Color-Word Test

The Stroop Color-Word Test, first introduced to American psychology by John Stroop in 1935, was used in this study as a distracter task. The origins of the Stroop effect can be traced to 1883 and principles studied by Wundt and Cattell (Killian, 1985). The Stroop Color-Word Test entails identifying the ink color used to print the word of a color. In some instances, both color stimuli are presented as the same color, however, at other times, the color stimuli are incongruent. For example, the word blue is printed in red ink and participants are supposed to attend to the ink color by answering "red." Since the Stroop Color-Word Test was only employed as a distracter task in this study, data was not collected. For a more detailed explanation of the Stroop effect, see the literature review written by MacLeod (1991). MacLeod notes that over 700 articles were published on the Stroop effect during the period between 1935 and 1991.

Administration of the Stroop Color-Word Test requires a chronological age of six years and proficiency in elementary education (Killian, 1985). In this study, the Stroop task was implemented on a standard computer between two applications of the Profile of Mood States-Bipolar Form. While participants completed the Stroop task on the computer, the infant cry recording was played from an adjacent room. It was believed that the computer task would direct suspicion away from the infant cry as a component in this study. Participants were told that the cry was merely happenstance and that the purpose of the study was to assess computer anxiety. The Stroop computer program used in this

study took approximately three minutes to complete. The ease of administration of the Stroop Color-Word Test is one of its greatest strengths (Killian, 1985).

Profile of Mood States-Bipolar Form (POMS-BI)

The Profile of Mood States-Bipolar Form (POMS-BI; Lorr & McNair, 1984/1988) is a self-report paper-and-pencil inventory of current mood states. This instrument is most appropriate for measuring transient emotional states that are sensitive to environmental stimuli (Peterson & Headen, 1983). The purpose of the POMS-BI in this study was to assess participants' mood changes before and after exposure to infant crying.

The POMS-BI is constituted of 72 adjectives, generating six bipolar dimensions: Composed-Anxious, Elated-Depressed, Agreeable-Hostile, Energetic-Tired, Clearheaded-Confused, and Confident-Unsure. Each dimension is composed of 12 adjectives, with 6 of the adjectives reflecting the negative pole and the other six reflecting the positive pole. In this study, only two of the bipolar dimensions (i.e., Composed-Anxious and Agreeable-Hostile) were statistically analyzed. The POMS-BI instructs participants to rate their mood "during the past week;" however, the experimenter asked participants to rate their mood "right now." Each of the 72 adjectives is accompanied by four possible answer choices: "Much like this" (3), "Slightly like this" (2), "Slightly unlike this" (1), and "Much unlike this" (0). The POMS-BI takes between 3 to 5 minutes to complete and can be administered individually or in groups (Peterson & Headen, 1983). A seventh grade education is suggested for appropriate comprehension of the material (Peterson & Headen, 1983).

Scoring is completed by hand and cardboard scoring overlays are available from the publisher. Each item on the POMS-BI can potentially receive a score of 0, 1, 2, or 3,

depending on the answer choice selected by the examinee. Raw scores from the six bipolar dimensions are obtained by subtracting the sum of the six positive adjective responses from the sum of the six negative adjective responses that comprise each bipolar dimension, and then adding a constant of 18. Therefore, each dimension has a possible range of 0 to 36. The six raw scores are then standardized into T-scores, with a mean of 50 and a standard deviation of 10. The six mood dimensions can be plotted onto profile sheets. Norms are available for both male and female high school, college, and psychiatric outpatient populations (Lorr & McNair, 1984/1988).

Development of the original POMS began in 1960, and was first published in 1971. In 1984, a new form of the POMS, named the POMS-BI, was introduced (Peterson & Headen, 1983). No other editions or revisions have been published since. The original POMS has moderately high internal and test-retest reliability, ranging from .65 to .74 (Peterson & Headen, 1983). The original POMS also has acceptable construct and criterion validity (Peterson & Headen, 1983).

The manual for the POMS-BI states that 66 participants from the normative sample were readministered the POMS-BI at a later date, which is not disclosed; test-retest reliability for the six dimensions ranged from .33 to .72 (Lorr & McNair, 1984/1988). Specifically, the Composed-Anxious dimension had a coefficient of .55 and the Agreeable-Hostile dimension had a coefficient of .33. It should be noted that these are acceptable indicators of temporal stability inasmuch as the POMS-BI is a measure of transient emotional states. The manual briefly discusses the construct validity of the POMS-BI by providing support for the bipolar nature of moods. No other reliability or validity data for the POMS-BI is presented in the manual.

Laidlaw (1999) found that the POMS-BI was correlated with the Personalized Emotional Index ($r = .83, p < 0.001$), helping to substantiate the criterion-related validity of the POMS-BI. Laidlaw also found internal consistency coefficients ranging from .65 to .78. The Agreeable-Hostile dimension had a coefficient of .65, however the author did not note the exact coefficient for the Composed-Anxious dimension, only stating that it was between .65 and .78. In another study (Kolt & Kirby, 1994), the Composed-Anxious and Energetic-Tired dimensions of the POMS-BI were able to distinguish between gymnasts with four or more injuries and those with less than four; thus upholding the criterion-related validity of the POMS-BI, as well as the established notion that anxiety is associated with injuries in sports. Overall, the POMS-BI has adequate psychometric data available; however, further support for the test's reliability and validity would greatly increase the value of this instrument.

One of the weaknesses inherent in the POMS-BI is the ease with which participants can fake their responses due to the fairly apparent nature of item content. Peterson and Headen (1983) suggest caution when interpreting the results of individuals who may be motivated to lie about their true moods. One of the strengths of the POMS-BI is that it is a relatively quick and easy instrument to administer. It also allows for the summation of 72 adjectives into six dimensions rather than simply being a mood adjective checklist. Additionally, the POMS-BI provides a furtive means of measuring mood state changes in response to infant crying without acknowledging to participants, at the time of administration, that the infant cry is a component in the study. Perhaps the most important reason for choosing the POMS-BI in this study involves its ability to

measure, within a brief period of time, transient mood states that are sensitive to environmental context.

Zeskind's reactions to infant crying scales

In addition to the POMS-BI, participants' self-reported reactions to infant crying were assessed via six bipolar adjective pairs: Urgent-Not Urgent, Grating-Pleasing, Piercing-Not Piercing, Arousing-Soothing, Aversive-Nonaversive, and Distressing-Not Distressing (see Appendix A). Based on the infant cry literature, these six adjective pairs were selected from among 10 adjective pairs that have been promulgated by Zeskind and Lester since 1978. The other four bipolar adjective pairs are Sick-Healthy, Spoiled-Not Spoiled, Comforting-Discomforting, and Manipulative-Not Manipulative.

Each of the six adjective pairs were rated on a seven-point scale. In this study, and as recommended by the authors, scale item polarity was counterbalanced so as to minimize order of presentation as a confounding variable. Therefore, three of the items (i.e., 3, 5, 7) were reverse scored. Higher scores are indicative of more self-reported aversion, while lower scores denote more positive responses to the infant cry. Before administration of the Zeskind scales, participants were informed that the infant cry was actually a component of this study. Informing the participants beforehand was necessary inasmuch as the Zeskind scales literally ask the participants about their perception of the cry; unlike the POMS-BI which can measure participants' emotional reactions without divulging that the cry is part of the experiment.

Childhood Trauma Questionnaire (CTQ)

The Childhood Trauma Questionnaire (Bernstein & Fink, 1998) is a self-report, retrospective measure of childhood abuse and neglect, designed to assess child

maltreatment from the perspective of individuals 12 years and older (Bernstein & Fink, 1998). The CTQ is composed of 28 items that generate five empirically-derived, factorial scales: Physical Abuse, Emotional Abuse, Emotional Neglect, Physical Neglect, and Sexual Abuse. In this study, only the physical abuse scale was used to evaluate the hypotheses.

The CTQ takes between 5 to 10 minutes to complete and can be administered in a variety of settings (Bernstein & Fink, 1998). A sixth grade reading level is required for appropriate comprehension of the instrument (Bernstein & Fink, 1998). To obtain the total score for each of the five maltreatment scales, the individual item scores from the five items that comprise each of the maltreatment scales must be summed. The total score for each of these maltreatment scales can range from 5 to 25 since each item on the CTQ is answered on a five-point Likert scale, ranging from "Never True" (1) to "Very Often True" (5). Based on the total scores, examinees can be placed in one of four classifications for each of the five maltreatment scales: None, Low, Moderate, or Severe. Cutoff scores are provided for each of these four classifications. Higher scores suggest more severe childhood trauma. Scores on the CTQ produce a positively skewed distribution with higher scores being represented less frequently relative to lower scores.

In addition to the five maltreatment scales, the CTQ produces a Minimization/Denial Scale which evaluates the examinee's tendency to be influenced by demand characteristics and/or respond in a socially desirable manner. In other words, this scale reduces false negatives. Each time participants mark "Never True" for question 10 (i.e., "There was nothing I wanted to change about my family.") and "Very Often True" for questions 16 (i.e., "I had the perfect childhood.") and 22 (i.e., "I had the best family in the

world.”), they receive one point. These three questions comprise the Minimization/Denial Scale. If participants obtain a score of 1, 2, or 3 on the Minimization/Denial Scale, their test results should be interpreted with caution (Bernstein & Fink, 1998). In a sample of 92 undergraduates, 75% of participants obtained a score of 0 on the Minimization/Denial Scale, while 10.9% obtained a score of 1, 10.9% obtained a score of 2, and 3.2% obtained a score of 3 (Bernstein & Fink, 1998). In this study, the Minimization/Denial Scale was used to flag potential false negatives on the CTQ. If participants received a score of 3 on this scale, their data was not analyzed.

Internal consistency reliability coefficients for the five CTQ scales ranged from .79 to .94 in a sample of substance-dependent hospital patients (Bernstein et al., 1994). In this same sample, test-retest reliability ranged from .80 to .83 during a mean interval of 3.6 months. Bernstein, Ahluvalia, Pogge, and Handelsman (1997) found internal consistency reliability coefficients ranging from .81 to .95 in a sample of adolescent psychiatric inpatients. For the Physical Abuse scale, the coefficient was .90. In a sample of 2,201 individuals from various backgrounds, including undergraduate students, Cronbach's Alpha was computed for each of the five maltreatment scales. The internal consistency coefficients were reported as follows: emotional abuse, .89; physical abuse, .82; sexual abuse, .92; emotional neglect, .89; and physical neglect, .66 (Bernstein & Fink, 1998). The reliability coefficient for the 92 undergraduates was .78 on the physical abuse scale.

In support of content validity, it can be noted that items on the CTQ were created from the child maltreatment literature. Moreover, factor analyses have supported the structure of the CTQ scales (Bernstein et al., 1994; Bernstein et al., 1997). Bernstein et al. (1997) found that scores on the CTQ were correlated with therapists' ratings of child

abuse in a sample of inpatients ($p < .01$). Similarly, the CTQ has been found to be significantly correlated with a structured interview pertaining to child abuse (Bernstein et al., 1994). Two goodness-of-fit indexes for the CTQ have also been computed. The Satorra-Bentler chi-square was found to be significant for 1673 individuals from three samples (Bernstein & Fink, 1998). The robust comparative fit index was .91, .94, and .96 for the same three samples (i.e., adult substance abusers, adolescent psychiatric inpatients, and female HMO members), respectively (Bernstein & Fink, 1998). Additionally, the CTQ is significantly correlated with scales of depression, Post Traumatic Stress Disorder, and dissociation (Bernstein & Fink, 1998). Dissociative Identity Disorder has been found to be correlated with scores on the CTQ ($p < .001$; Scropo, Drob, Weinberger, & Eagle, 1998). A positive correlation has also been reported between scores on the Brief Symptom Inventory (Derogatis, 1993) and the CTQ ($p < .01$; Allen, Coyne, & Huntoon, 1998). Bernstein and Fink (1998) concluded that the validity of the CTQ has been supported throughout a diversity of populations within the United States.

Bernstein et al. (1994) noted that the “noninvasiveness” of the CTQ makes it ideal for research. Questions contained within the CTQ are phrased in objective, behavioral terms and avoid the use of pejorative terminology (Bernstein & Fink, 1998). In fact, Bernstein and Fink reported that “strongly adverse reactions to the CTQ appear to be quite rare” (p. 14). Although the CTQ is a relatively new instrument, it has encouraging psychometric data. In addition, the manual is comprehensive and understandable.

Procedure

Due to the design of this study, individual administration of each experimental session was necessary. From the lobby of the psychology building, the experimenter

escorted each participant upstairs to the experimental room, which is located within a suite of rooms. The face on the door of the first room in this suite is clearly visible from the doorway of the hall. On this suite door a sign was tape, stating “Infant Assessment. Please be quiet.” An infant carrier was placed to the right of this same door. As the experimenter and participant walked to the experimental room, which is the third room in this suite, the experimenter pointed to the first door, explaining: “They’re conducting a study with babies, so we need to be quiet.” The second room in the suite, which is sandwiched between the infant room and the experimental room, is the room from which the infant cry recording was played. Upon entering the experimental room, each participant sat with their back towards the experimenter at a separate table, where the computer was located.

Participants were asked to sign an informed consent (see Appendix B). The informed consent was the only document bearing each participant’s name and it was kept separate from the rest of the study’s data. Therefore, data was never associated with the participants’ names. Mild deception was involved in this study inasmuch as participants were told that the purpose of the experiment was to assess computer anxiety. Participants were told this in an attempt to minimize suspicion of the infant cry as a component in this study.

After completion of the informed consent, participants were given the POMS-BI, followed by the Stroop Color-Word Test which was administered on a computer. One minute after beginning this distracter task, the experimenter surreptitiously started the infant cry recording via a remote control. When the cry began, the experimenter waited 5 seconds, then responded: “Sorry about the noise. It sounds like one of the babies is upset.” After completion of the Stroop Color-Word Test and after the infant cry had ceased,

participants were administered the POMS-BI again. Participants were then informed that the cry was actually a component of the experiment and they were asked if they suspected the cry as a variable in this study (see Appendix A). Next, participants were administered the infant crying scales designed by Zeskind (see Appendix A), and then the CTQ, followed by a demographic variables questionnaire (see Appendix C). Finally, a copy of the debriefing was given to each participant (see Appendix D). The debriefing included the names of local resources offering free counseling and assistance to abuse survivors, as well as the phone number of a local, 24-hour, crisis line in case participants required immediate assistance.

Data Analysis

Eight Pearson correlations were conducted in order to evaluate the eight proposed hypotheses. The first correlation was between the Zeskind Urgent-Not Urgent scale and the CTQ physical abuse scale. The second correlation was between the Zeskind Grating-Pleasing scale and the CTQ Physical Abuse scale. The third correlation was between the Zeskind Arousing-Soothing scale and the CTQ Physical Abuse scale. The fourth correlation was between the Zeskind Piercing-Not Piercing scale and the CTQ Physical Abuse scale. The fifth correlation was between the Zeskind Aversive-Nonaversive scale and the CTQ Physical Abuse scale. The sixth correlation was between the Zeskind Distressing-Not Distressing scale and the CTQ Physical Abuse scale. The seventh correlation was between the subtracted difference from the first and second administration of the POMS-BI Composed-Anxious T-scores and the CTQ physical abuse scale. The eighth correlation was between the subtracted difference from the first and second

administration of the POMS-BI Agreeable-Hostile T-scores and the CTQ physical abuse scale.

CHAPTER III

RESULTS

Sample Descriptive Statistics

Age, sex, and ethnic identity

In regard to the 93 participants whose data were analyzed, their ages ranged from 18 to 59 years, with a mean of 25.2 years and a standard deviation of 8.4. Nineteen of these participants were males (20.4%) and 74 were females (79.6%). Moreover, 64 were Caucasian (68.8%); 21 were African American (22.6%); 3 were Hispanic (3.2%); 3 were Asian or Pacific Islander (3.2%); and 2 were of other ethnic origins (2.2%). None of the participants were of Native American origin.

The seven participants who were dropped from the study because they obtained a three on the CTQ Minimization/Denial Scale were similar to the above sample. Their mean age was 22.0 years, with a standard deviation of 4.2. Four of these participants were female and three were male. Only one of these participants was African American; the other six were Caucasian.

Childcare experience

Sixty-three of the 93 participants reported that they did not have any children (67.7%). However, 12 of these 93 participants reported having one child (12.9%), 8 reported two children (8.6%), 8 three children (8.6%), and 2 four children (2.2%). Therefore, a total of 30 participants reported having at least one child (32.3%).

Child care experience was also assessed using a 5-point Likert scale. Only 3 of the 93 participants reported that they had no child care experience (3.2%). Thirteen of the participants indicated that their child care experience was "Below Average" (14.0%).

Twenty-four reported that their child care experience was “Average” (25.8%). Thirty-one participants disclosed that their experience was “Somewhat Above Average” (33.3%). Finally, 22 of the participants reported that their quantity of child care experience was “Exceptionally Above Average” (23.7%).

Physical abuse

Scores marked on the CTQ physical abuse scale ranged from 5 to 22. The lowest score possible on the CTQ is 5 and the highest is 25. The mean score on the physical abuse scale was 8.4, with a standard deviation of 3.8. This mean falls within the Low category of physical abuse. The CTQ data can be categorized into four groups of physical abuse (i.e., None, Low, Moderate, and Severe) based on cutoff scores presented in the CTQ manual. Of the 93 participants, 53 comprised the None category of physical abuse (57.0%), 13 the Low category (14.0%), 15 the Moderate category (16.1%), and 12 participants obtained a score within the Severe category of physical abuse (12.9%).

Suspicion of the cry

All 93 participants (100%) conveyed that they had heard an infant crying during the computer task. Of these 93 participants, only 5 stated that they suspected the cry was a component in this study (5.4%). The other 88 participants indicated that they had no suspicion of the cry (94.6%). This 5 to 88 ratio does not allow for statistical analysis of this data.

Zeskind's Infant Crying Scales

Six Pearson correlations were conducted using data from the CTQ physical abuse scale and Zeskind's six bipolar adjective pairs (i.e., Urgent-Not Urgent, Grating-Pleasing,

Piercing-Not Piercing, Arousing-Soothing, Aversive-Non Aversive, and Distressing-Not Distressing). None of these six correlations reached significance at the .05 alpha level.

The correlation between Zeskind's Urgent-Not Urgent adjective pair and the CTQ physical abuse scale was not significant ($r = -0.10$, $p = 0.34$). The mean of the Urgent-Not Urgent variable was 4.1, with a standard deviation of 1.6. The Urgent-Not Urgent variable was rated on a seven-point scale, ranging from one to seven. Scores closer to the number one suggest endorsement of the Not Urgent pole, while scores near seven are indicative of more Urgent reactions to the cry.

The correlation between Zeskind's Grating-Pleasing adjective pair and the CTQ physical abuse scale was not significant ($r = -0.03$, $p = 0.80$). The mean of the Grating-Pleasing variable was 4.5, with a standard deviation of 1.2. Scores closer to the number one suggest endorsement of the Pleasing pole, while scores near seven are indicative of more Grating reactions to the cry.

The correlation between Zeskind's Piercing-Not Piercing adjective pair and the CTQ physical abuse scale was not significant ($r = -0.004$, $p = 0.97$). The mean of the Piercing-Not Piercing variable was 3.3, with a standard deviation of 1.7. Scores closer to the number one suggest endorsement of the Not Piercing pole, while scores near seven are indicative of more Piercing reactions to the cry.

The correlation between Zeskind's Arousing-Soothing adjective pair and the CTQ physical abuse scale was not significant ($r = -0.17$, $p = 0.11$). The mean of the Arousing-Soothing variable was 4.9, with a standard deviation of 1.3. Scores closer to the number one suggest endorsement of the Soothing pole, while scores near seven are indicative of more Arousing reactions to the cry.

The correlation between Zeskind's Aversive-Nonaversive adjective pair and the CTQ physical abuse scale was not significant ($r = 0.02$, $p = 0.83$). The mean of the Aversive-Nonaversive variable was 3.9, with a standard deviation of 1.4. Scores closer to the number one suggest endorsement of the Nonaversive pole, while scores near seven are indicative of more Aversive reactions to the cry.

The correlation between Zeskind's Distressing-Not Distressing adjective pair and the CTQ physical abuse scale was not significant ($r = -0.10$, $p = 0.35$). The mean of the Distressing-Not Distressing variable was 3.8, with a standard deviation of 1.8. Scores closer to the number one suggest endorsement of the Not Distressing pole, while scores near seven are indicative of more Distressing reactions to the cry.

POMS-BI

Analyses were conducted on T-scores from two POMS-BI dimensions (i.e., Composed-Anxious and Agreeable-Hostile). It was hypothesized that mood (i.e., anxiety and hostility) would be elevated as a result of hearing an infant cry. Further, it was hypothesized that the amount of elevation would positively be correlated with a measure of physical abuse (CTQ).

In order to determine a change in mood, the POMS-BI was administered twice. (Refer to the method section for details.) After the first administration of the POMS-BI, but before the second administration, participants were exposed to the infant cry. Scores from the first administration of the POMS-BI Composed-Anxious dimension were not significantly correlated with the physical abuse scale. This indicates that participants exhibited similar levels of anxiety before exposure to the infant cry, regardless of their self-reported levels of childhood physical abuse. The T-score mean for the

Composed-Anxious POMS-BI dimension, first administration, was 52.1 (SD = 8.5). For the second administration of the POMS-BI, the mean for the Composed-Anxious T-score changed to 54.0 (SD = 9.7).

This change in score on the Composed-Anxious scale was used to represent reaction to infant cry. This score was also used to conduct a correlation with the CTQ physical abuse scale. Results of this analysis were not significant ($r = -0.15$, $p = 0.14$).

In regard to the Agreeable-Hostile dimension, scores from the first administration of the POMS-BI were not significantly correlated with the physical abuse scale. This indicates that participants exhibited similar levels of hostility before exposure to the infant cry, regardless of their self-reported levels of childhood physical abuse. The T-score mean for the Agreeable-Hostile POMS-BI dimension, first administration, was 50.8 (SD = 8.4). For the second administration of the POMS-BI, the mean for the Agreeable-Hostile T-score changed to 52.2 (SD = 8.9).

This change in score on the Agreeable-Hostile scale was used to represent reaction to infant cry. This score was also used to conduct a correlation with the CTQ physical abuse scale. Results of this analysis were not significant ($r = 0.03$, $p = 0.78$).

CHAPTER IV

DISCUSSION

The general hypothesis that participants with higher rates of childhood physical abuse would perceive the infant cry more negatively than those with lower rates of physical abuse was not supported by this study. None of the eight correlations reached significance at the .05 alpha level. A relationship between childhood physical abuse, as assessed by the CTQ physical abuse scale, and reactions to the infant cry, measured as urgent, grating, piercing, arousing, aversive, and distressing responses, was not established. Even when participants did not suspect the cry as a component in the study, an association between childhood physical abuse and expressions of anxiety and hostility was not found.

A similar lack of findings was displayed in the Casanova et al. (1994) study. Casanova et. al are the only authors to have published a study within the infant cry literature using survivors, rather than perpetrators, as participants. Like this study, Casanova et al. were unable to find any differences between survivors' and nonsurvivors' self-reported reactions to infant crying. However, they did discover that while participants in the comparison group had an increase in skin conductance during the infant cry, participants in the survivor group had no change in their skin conductance. This implies that survivors of childhood physical abuse may be less responsive to infant crying.

The perpetrator literature appears to contradict the physiological findings presented in the Casanova et al. (1994) study. The perpetrator literature reports consistently that abusive and high abuse potential individuals exhibit physiological arousal to infant crying (Friedrich et al., 1985; Frodi & Lamb, 1980b; Pruitt & Erickson, 1985).

However, the perpetrator literature also reports mixed findings regarding these same individuals' self-reported reactions to infant crying (i.e., Friedrich et al., 1985; Frodi & Lamb, 1980b; Milner et al., 1995; Pruitt & Erickson, 1985; Stasiewicz & Lisman, 1989; Zeskind & Shingler, 1991). What is occurring between the time participants react physiologically to the infant cry and the time they evaluate their emotional reactions to account for these mixed findings regarding their self-reports?

The design of this experiment is different from the perpetrator literature and the Casanova et al. study in one important way. Namely, 95% of the participants in this study believed that a baby was actually crying in the adjacent room when they responded to questions pertaining to their levels of anxiety and hostility. In addition, participants were also informed, toward the end of the study, that the cry was a recording, after which, they were asked to indicate their reactions to the cry. This change in methodology from previous research to include the employment of a more naturalistic cry presentation was intended to reduce the reactivity error and mono-method bias of previous experiments.

The most obvious conclusion to the findings examined in this study is that no relationship may exist between history of physical abuse and self-reported reactions to infant crying. One possible explanation for this lack of significance involves the recruitment of participants. Considering that the survivors in this study were able to attend college, they may have had higher levels of functioning and better mental health than the average survivor of physical abuse. As noted in the results section, baseline levels of anxiety and hostility were not different among the participants, based on their CTQ scores. In fact, the participants exhibited normal levels of anxiety and hostility, regardless of their self-reported histories of physical abuse. It is also important to consider the data showing

that, in general, only one-third of survivors are thought to become perpetrators of abuse (Kaufman & Zigler, 1988; Oliver, 1993).

One of the limitations of this study is that a measurement of computer anxiety was not included in the battery of tests. It could be argued that changes on the POMS-BI were due to the Stroop computer task rather than the infant cry; particularly because participants were told that the purpose of the study was to measure computer anxiety. This study is also limited because only one type of cry was implemented. The cry used was a normally phonated cry. Research reveals that hyperphonated cries, such as pain cries, are typically perceived as more aversive than cries with normal fundamental frequencies (Bisping, Steingrueber, Oltmann, & Wenk, 1990; Boukydis, 1985; Crowe & Zeskind, 1992; Dessureau et al, 1998; Zeskind & Marshall, 1988; Zeskind & Shingler, 1991). Furthermore, Zeskind and Shingler (1991) found that both abusive and nonabusive parents perceived hyperphonated cries as most likely to lead to abuse. Would the use of a pain cry have changed the results of this study?

Another shortcoming of this study is that participants' physiological arousal to infant crying was not evaluated. Such an assessment would have been useful in comparing the results of this study to that of Casanova et al., which included the measurement of physiological arousal. Moreover, this study did not assess participants' behavioral reactions to the infant cry. Some studies have attempted to do this by asking participants what actions they would engage in, if exposed to the cry (Boukydis, 1985). However, this type of behavioral response is still self-reported. It would be more realistic to have a third party observe and rate the participants' behavior based on an objective and consistent system, rather than rely on participants' self-evaluations, whereby the criteria differ from

participant to participant. Evaluating behavioral responses to infant crying is important inasmuch as physiological and self-reported reactions do not necessarily correspond with one's chosen action. For example, two individuals may feel frustrated by a crying infant and may become physiologically aroused, but only one of these individuals may respond with an abusive behavior, while the other individual may react with patience and concern.

A final limitation of this study is that all the participants were exposed to the infant cry. This methodological design does not allow for a comparison between cry and no-cry conditions. In this study, such a distinction would have been important in determining whether the mean increases in both anxiety and hostility after the infant cry were due to exposure to the cry or some other reason, such as the effects of test-retest. Future research should implement a between-subject design whereby two groups are formed. Both groups would be administered the POMS-BI, but only one group would be exposed to the cry. This cry group would still be led to believe that an infant was currently crying, but unlike this study, no differentiation regarding abuse history would be made. In this way, a comparison group could be established.

Future cry research should also involve as realistic a cry presentation as possible. Maybe, even utilizing visual stimuli in the form of a live infant, since simply hearing an infant cry allows for the rationalization that another adult is assisting the child. It is important to realize that physical abuse of a child ensues from a complex pattern of perpetrator and victim interaction, so that the constant cry of a colicky baby may elicit a more aversive response than a cry lasting less than 39 seconds. Teaching new parents, who are also survivors of abuse, appropriate behavioral responses toward their crying infant and helping them to monitor their emotional reactions and implement stress management

skills may help foster the beginnings of a healthy child-parent bond and decrease the occurrence of abusive incidents. To further advance this line of study, it would be beneficial to conduct more research examining both survivors' and perpetrators' responses to infant crying.

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Appendix

Infant Crying Scales

1) Did you hear a baby crying while you were working on the computer? Yes No

2) Before being told, did you suspect that the cry was part of this study? Yes No

3) Urgent Not Urgent

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4) Pleasing Grating

1	2	3	4	5	6	7
1	2	3	4	5	6	7

		Not Piercing
5) Piercing		

1	2	3	4	5	6	7
1	2	3	4	5	6	7

6) Soothing Arousing

1	2	3	4	5	6	7
1	2	3	4	5	6	7

Nonaversive

7) Aversive

1	2	3	4	5	6	7
1	2	3	4	5	6	7

Distressing

8) Not Distressing

	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

Consent to Participate in a Research Study at Austin Peay State University

You are being asked to participate in a research study. This form is intended to provide you with information about this study. You may ask the researchers listed below about this study or you may call the Office of Grants and Sponsored Research, Box 4517, Austin Peay State University, Clarksville, TN 37044, (931) 221-7881, with questions about the rights of research participants.

1. TITLE OF RESEARCH STUDY

Effects of contextual presentation and self-reported childhood trauma.

2. PRINCIPAL INVESTIGATOR

Sharon McGregor, B.A., Graduate Student, Department of Psychology, APSU

3. FACULTY SUPERVISOR

Nanci Stewart Woods, Ph.D., Associate Professor of Psychology, APSU, (931) 221-7236

4. THE PURPOSE OF THE RESEARCH

The purpose of this study is to measure how childhood experience effects the development of computer anxiety. You will be asked questions about your feelings and potentially sensitive questions about your childhood experiences. You will also participate in a computer task that will require no previous computer experience. This study is being conducted to partially fulfill the requirements for a master's degree in psychology. The results of this study will only be presented or published in the form of group responses. Your individual responses cannot and will not be reported.

5. PROCEDURES FOR THIS STUDY

If you choose to participate in this study, you will have the opportunity to fill out a questionnaire about your current feelings and emotions. Next, you will participate in a computer task where you will read words projected on the screen and then identify the color or colorname of each word. Finally, you will report again about your current emotions and also about your family experiences as a child. Your name will not be recorded on any of the questionnaires and accordingly, your answers will not be associated with your name. If you sign this consent form, it will be stored separately and will not be connected with the information you provide on the questionnaires. This session is expected to last about one hour.

6. POTENTIAL RISKS AND BENEFITS TO YOU

One of the questionnaires you will be administered includes questions that address sensitive family issues which may potentially evoke stressful emotions in some participants. You do not have to answer any question you do not wish to answer. At the discretion of your psychology professor, you may be offered extra credit for your participation. Before you leave this room, the experimenter will complete a form, stating the length of time you participated in the study, for you to give to your professor.

7. INFORMED CONSENT STATEMENT

I have read the above information regarding what the study is about, why it is being done, and any benefits or risks involved. I understand that I do not have to take part in this study, and my refusal to participate will involve no penalty or loss of rights. I voluntarily agree to participate in this study and understand that by agreeing to participate, I have not given up any of my human rights. I understand that I have the right to withdraw my consent and stop participating at any time during the study and all data collected from me will be destroyed. However, once I have completed the study, I understand my data cannot be destroyed because no identifying information will be connected to the information that I provided. If I choose to withdraw, that choice will be respected and I will not be penalized or coerced to continue. I understand that I will receive a copy of this form.

My name is Sharon McGregor and I am a graduate student at Austin Peay State University. My phone number is (931) 648-3393. My campus address is: APSU, PO Box 7488, Clarksville, TN 37044. I will be happy to answer any questions you may have. My advisor is Nanci Stewart Woods, Ph.D. and she can be reached at (931) 221-7236. Her campus address is: APSU, psychology department, PO Box 4537, Clarksville, TN 37044.

I, _____, give permission for Sharon McGregor, APSU graduate student, to use my data for her study.

Signature of Participant: _____ Date: _____

Signature of Researcher: _____ Date: _____

Appendix C

Demographic Questionnaire

1. Age: _____

2. Gender (Circle one): Male Female

3. Ethnic Identity (Check only one):

☐ White/Non-Hispanic Origin ☐ Black/Non-Hispanic Origin

☐ Hispanic ☐ American Indian/Alaskan Native

☐ Asian or Pacific Islander ☐ Other (Specify): _____

4. Number of Children: _____

5. Amount of child care experience (circle one):

1	2	3	4	5
None	Below Average	Average	Somewhat Above Average	Exceptionally Above Average

Appendix D

Debriefing

Thank you for participating in my study. The purpose of this study was to measure the relationship between childhood trauma and self-reported reactions to infant crying. Mild deception was used in this study inasmuch as you were informed that the purpose of this study was to assess the relationship between computer anxiety and childhood experiences. The activity on the computer was merely a distracter task, used to mask the infant cry as a component in this study. The purpose of this was to obtain your perception of the cry without this perception being influenced by your knowledge that the cry was a recording rather than an actual baby crying in the next room. It is hypothesized that participants with higher rates of childhood trauma will rate the infant cry more negatively compared to participants with lower rates of childhood trauma.

If you have any concerns about this study, please contact me or my advisor. My name is Sharon McGregor and I am a graduate student at Austin Peay State University. My phone number is (931) 648-3393. I will be happy to answer any questions you may have. My advisor is Nanci Stewart Woods, Ph.D. and she can be reached at (931) 221-7236. Her campus address is: APSU, psychology department, PO Box 4537, Clarksville, TN 37044. You may also contact the Office of Grants and Sponsored Research with any questions about research participants' rights. Their phone number is (931) 221-7304 and their address is: APSU, PO Box 4517, Clarksville, TN, 37044.

There are also counselors at the Austin Peay State University Counseling Center where you can receive counseling free of charge. The Counseling Center's phone number is (931) 221-6162. Additionally, there is a VOCA grant established at Harriett Cohn

Mental Health Center, offering free counseling services to survivors of child maltreatment. If you are interested in this service, call Harriett Cohn at (931) 920-7200; tell the secretary that you need to schedule an appointment under the VOCA program. Harriett Cohn is adjacent to APSU, located at 511 North 8th Street. If you need immediate assistance, you may contact the 24-hour mobile crisis team, toll free, at (800) 681-7444.

Thank You,

Sharon McGregor

If you would like a copy of the final results of this study (which will not include specific reference to any individual), tear off at the dotted line, complete the two blanks below, and give this slip to me.

Name: _____

Address: _____

Sharon Elizabeth Kiley McGregor was born in Cleveland, Ohio on June 23, 1975. She has two brothers, Michael and Sean, and four sisters, Bobbie, Chris, Michelle, and Maureen. She attended grade school at Birch Elementary School and Saint Brendan School, graduating from North Olmsted High School in June of 1993. In August of the same year, she enrolled at the College of Wooster in Ohio. Her college extracurricular activities included participation in the Psychology Club, WCWS radio, Epsilon Kappa Omicron sorority, Gospel Choir, Student Activities Board, and Women's Blacksheep Rugby. She also founded and was president of Make A Difference, a college-based organization dedicated to the increased awareness and prevention of child abuse and neglect. She obtained the degree of Bachelor of Arts in psychology from the College of Wooster on May 12, 1997. Her undergraduate advisor and mentor was Leslie Barnes Fluharty. In August of 1998, she entered graduate school at Austin Peay State University in Tennessee. She is a candidate for the degree of Master of Arts in clinical psychology, to be awarded in May 2001. While at APSU, she became a member of both the Psi Chi and Phi Kappa Phi honor societies. She has been a student affiliate with the American Psychological Association since January of 1996. For the last three years and four months, she has been employed at the Harriett Cohn Mental Health Center in Clarksville, Tennessee. Her research and applied interests are within the field of child maltreatment.