

Ethnic Differences with Abuse during Pregnancy

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Abstract: None available.

Full Text: Headnote ABSTRACT: This research examined what may be the earliest link in the chain of violence, the prenatal and perinatal developmental period, with mothers who experienced violence during their pregnancies. One hundred and sixty-eight mothers reporting abuse and their newborn infants from a sample of 1,226 women recruited in the Boston City Hospital Maternal Health Habits Project were studied. The results revealed that the newborns of Caucasian mothers had an increase in the level of behavioral problems of crying, hyperactivity, central nervous system depression and respiratory distress though not significantly. For Black and Hispanic mothers there were less baby problems with self-reported abuse. Several explanations for these findings are offered. ETHNIC DIFFERENCES WITH ABUSE DURING PREGNANCY ON NEWBORN BEHAVIORS A number of empirical studies have identified the influence of media violence, drugs and alcohol, the availability of guns, biological, psychological and emotional factors, poverty and a dysfunctional family environment on young people in an effort to discern the origins of violent behaviors. With homicide being the leading cause of death for African-American youths and the second leading cause of death for Hispanic youths (Anderson, Kochanek, & Murphy, 1997) research continues in an attempt to stem the tide of this public health concern. To date, many scholars who investigate youth violence conclude that no theory of the cause of violent behavior exists that can explain every criminal act. The prevailing wisdom is that youth violence is determined by a chain of events and a complex interaction of influences. This research utilized the theoretical perspective that the pathogenesis of violence is molded at a profoundly early age-during prenatal and perinatal development. What was hypothesized was that prenatal experiences of abuse lead to perinatal complications, in the earliest link of the chain of violence, increasing the likelihood of later re-enactments. Children and Violence Until there were murders by children, it was almost inconceivable that acts this extreme might begin as psychological disturbances in very early childhood. This view was based on the long-held assumption that the prenatal brain is not physiologically developed well enough to retain harmful experiences. Yet increasingly, clinical evidence demonstrates that complex disorders can and do form at an early age (Farrington, 1991) and that sensory events can be recorded, especially rapid responses to threatening stimuli, by the amygdala bypassing the cortex altogether (LaDoux, 1986). Psychological investigators (Loeber, 1990; Olweus, Block & Radke-Yarrow, 1986; Widom, 1989) point to trauma or adverse experiences as being readily retained in early childhood. Other research on prenatal behavior delineates fetuses' use of their developed senses in utero (Fifer & Moon, 1995; Teicher & Blass, 1977), as they are able to feel pain (Blechs Schmidt, 1981; Noonan, 1983), and have a rudimentary ability to learn and remember (Bower, 1989; Lecanuet, Fifer, Krasnegor & Smotherman, 1995). The major question that remains unanswered in the violence literature to date is why only a small number of young people who have been exposed to known risk factors (e.g., early trauma, abuse, rejection, deprivation, violence in the media, availability of guns, etc.) exert violence? Even more perplexing are the children who commit heinous murders who had no prior behaviors indicating a psychopathology. A Prenatal and Perinatal Theoretical Explanation of Violence Chamberlain (1999) has described how "prenates show appropriate hyperactivity in response to danger" (p. 37), easily observed by ultrasound technologies. Predictable sequelae following a dangerous, traumatic incident would likely be hyperactivity, hypervigilance or depression (hypoactivity). The link has already been made between hyperactivity and delivery complications to later violence (Kandel & Mednick, 1991; Mungas, 1983). As previously stated, what was theorized was that prenatal insults from abuse lead to perinatal complications in the earliest link of the chain of violence, increasing

the likelihood of later re-enactments. A preliminary study by Amaro, Fried, Cabrai and Zuckerman (1990) investigated the association between substance abuse and the experience of violence during pregnancy and newborn outcomes, namely birth weight, infant length, head circumference, and gestational age. Their results indicated that the experience of violence during pregnancy is weakly, if at all, associated with newborns' physical correlates, but these authors did not examine newborn behaviors. This study went the next step and examined the behavioral measures of newborns from mothers who reported abuse during their pregnancy. The Purpose of the Study This study examined neonates whose mothers reported abuse during their pregnancy. The aim of the research was to determine if a relationship existed between newborns who have experienced violence before birth and their postnatal behaviors. The prediction was that there would be elements of behavioral stress or trauma in the underlying constitutional vulnerabilities of newborns from abused mothers. Measured were their sensory hyperactivity or hypoactivity (noted / not noted), respiratory distress (noted / not noted), and crying (1) excessive, (2) normal, (3) weak, (4) absent as a measure of affective internal distress. Also included were their Apgar (1953) scores (a newborn index status of the major biological systems taken in the first minutes of life) ranging from 1-10 (see Figure 1). This prenatal, perinatal and neonatal developmental time frame (as opposed to young children or adolescents) was utilized to see if there was an observable difference at that age, and to avoid the obvious potential confounds of dissimilarities found in care givers or other environmental differences later on. METHOD Participants Total sample of mothers. The sample was an archived data set from the Boston City Hospital Maternal Health Habits Project (Schwarz, Muller, McKean &Lang, 1994) that was part of an ongoing study of maternal health behaviors, psychosocial characteristics, and pregnancy outcomes. Here, women were consecutively recruited from the Women's and Adolescent Prenatal Clinics of the hospital between July 1984 and June 1987 with the criteria for recruitment as the ability to communicate in English or Spanish. The sample group of 1,226 mothers reflected the low-income, primarily black and Hispanic populations, served by the Boston City Hospital.

Figure 1

Measures of Stress (Independent Variables) and Newborn Behaviors (Dependent Variables)

Measures of Stress (Independent Variable)	Pregnant Mothers	Newborns' Behaviors (Dependent Variables)
<p>Prenatal Interview Question:</p> <p>Women were utilized from within the Boston study when self-reports of violent incidents were found to have occurred during the pregnancy, ascertained by the following question:</p> <p>Were you physically threatened or abused, or were you involved in any fights or beatings? (YES/NO)</p>	<p>SELF-REPORT:</p> <p>ABUSED</p> <p>NOT ABUSED</p> <p>(Classical Conditioning)</p> <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>Potential confounding variables:</p> <p>Socioeconomic status:</p> <ul style="list-style-type: none"> ▪ Monthly income ▪ Education ▪ Race ▪ Age ▪ Marital status (father/no father) <p>Health factors of:</p> <ul style="list-style-type: none"> ▪ Drug/alcohol use </div>	<p>Apgar scores: a newborn index status of the major biological systems taken during the first minutes of life.</p> <ul style="list-style-type: none"> ▪ 10 (scores of 7-10 = normal) ▪ 9 ▪ 8 ▪ 7 ▪ 6 (scores of 4-7 resuscitation may be needed) ▪ 5 ▪ 4 ▪ 3 (scores of 3 and below, immediate resuscitation needed) ▪ 2 ▪ 1 <p>Crying:</p> <ul style="list-style-type: none"> ▪ Absent ▪ Weak ▪ Normal ▪ Excessive <p>Hyperactivity:</p> <ul style="list-style-type: none"> ▪ Noted ▪ Not noted <p>CNS Depression (hyperactive):</p> <ul style="list-style-type: none"> ▪ Noted ▪ Not noted <p>Respiratory distress syndrome:</p> <ul style="list-style-type: none"> ▪ Noted ▪ Not noted <p>Combined to: "Any Problems" (n=47) "No Problems" (n=121)</p>

information (marital status, income, ethnicity, and education). Prenatal Interview Questionnaire. One interview question within the Prenatal Interview Questionnaire, specifically related to abuse and important to this study, was as follows: "Were you physically threatened or abused, or were you involved in any fights or beatings (Yes/No)?" (see Table 1). The current study utilized only the 168 mothers reporting abuse as participants. Newborn behavioral characteristics. As previously stated, the newborn behavioral characteristics of sensory hyperactivity or hypoactivity (noted / not noted), respiratory distress (noted / not noted), and crying (1) excessive, (2) normal, (3) weak, (4) absent were utilized. In examining the frequencies hyperactivity (N = 168) was found to be noted (vs. not noted) in only a small percentage of neonates (6.0%) in the Boston sample of mothers who reported abuse. The same was true for respiratory distress (N = 168, noted = 1.2%) while no hypoactivity or central nervous system depression cases were noted (N = 168, noted = 0.0%), making these distributions highly disproportionate. Newborn crying was categorized as "normal" (n = 148, 88.1%) or a problem noted (n = 16, 9.5%) if receiving a score of "absent, weak, or excessive," as a way to show more variability. (Note: population numbers of less than 168 are due to missing data.) Finally, Apgar (1953) scores at 1 minute (n = 168) and 5 minutes (n = 168) were rated as behaviorally problematic if the newborn scored 6 or below (see Table 2). A combined score of all the above newborn dependent variables into a single "baby problems" variable (N = 168) of "any problems" (n = 47, 28.0%) or "no problems" (n = 121, 72.0%) was also created to increase the variability. Procedure Mothers. All participants were interviewed in the prenatal period of their pregnancies by one of five bilingual interviewers. Abused women were identified by their response to the item in the questionnaire regarding violence, as stated. Race characteristics were recoded from eight categories: White, Black (North American or other), Hispanic, Asian/Pacific Islander, Alaskan/Native American, Black and White, Black and Hispanic, Hispanic and White, or other from the archived data set into four categories of: White, Black (or mix), Hispanic (or mix) and others. Newborns. Infant variables were obtained from a physical exam of each baby within 8 to 72 hours after delivery, by one of five trained pediatricians, blind to the mothers' abuse histories. Following the standardized physical, the study's main pediatrician reviewed each infant's medical record to ascertain various reflexes and behaviors that should be present at birth. The protocol for interviewing and performing the physical examination of the mothers and infants was approved by the Human Studies Committee of Boston City Hospital. Subjects were protected from the use of the data for criminal prosecution by a writ of confidentiality obtained under Title 42 of section 242A of the U.S. Code. To minimize attrition, participants were paid \$10 for each interview and willing to give informed consent. The archival database is in the public domain.

Table 1
Mother's Self Report of Abuse During Pregnancy

<i>Condition</i>	<i>N</i>	<i>Percent</i>
Not abused	1058	86.3
Abused	168	13.7
Total	1226	100.0

RESULTS A description of the sample will be offered initially. The first subsection will present maternal and newborn descriptive characteristics, and the second section will include the bivariate analyses with tables. Maternal and Newborn Descriptive Characteristics The abused group of mothers (n = 168 or 13.7%) from the Boston City Hospital Maternal Health Habits Project were primarily Black/ Black mix (66.7%) and Hispanic/Hispanic mix (16.1%) populations with Caucasian (10.1%) and other races (7.1%). The women ranged in age from 14 to 41 (M = 23.37, SD = 5.55). Most were single (62.8%) while 11.9% were living with the father of the baby, and 25.3% were married. Sixty-two (36.9%) reported a household monthly income of less than \$500, 33 participants (19.6%) had an income of \$501-\$999, and 22 (19.0%) stated an income of \$1000 or more with 41 (or 24.4%) answering "don't know" or refused to answer. Most participants reported not having completed a

high school (highest grade completed stated as first to eleventh grades) education (50.0%), with 32.7% reporting having done so. Another 17.3% of participants had attended or completed a post high school education. The number of prenatal health visits ranged from 1-26 (M = 8.53, SD = 4.21). The frequency of the newborns by gender were 89 male infants (53.0%) and 79 females (47.0%).

Table 2
Distribution of Apgar Scores for Measurements at 1 and 5 Minutes after Birth

<i>Condition</i>	<i>N</i>	<i>Percent</i>
Apgar scores (1 minute)		
7-10	146	86.9
1-6	22	13.1
Total	168	100.0
Apgar scores (5 minutes)		
7-10	162	97.0
1-6	4	3.0
Total	168	100.0

Table 3
Self-Reported Abuse During Pregnancy by Mother's Race/Ethnicity

<i>Race / Ethnicity</i>	<i>Self-Reported Abuse Response</i>		<i>Totals</i>
	<i>Not Abused</i>	<i>Abused</i>	
White	78 (81.1%)	17 (17.9%)	95 (100%)
Black or Black Mix	749 (87.0%)	112 (13.0%)	861 (100%)
Hispanic or Mix	197 (87.9%)	27 (12.1%)	224 (100%)
All Others	34 (73.9%)	12 (26.1%)	46 (100%)
Totals	1058 (86.3%)	168 (13.7%)	

Bivariate Analysis A bivariate analysis was done on the collapsed ethnicity variables (as described in the method section). Mothers' report of abuse was compared with the newborns' behavioral variables (see Figure 2). Results revealed that mothers' self-report of abuse displayed the highest level of probability for baby problems with Caucasian women in line with the study's hypothesis. However, this finding is problematic due to the White mothers being such a small percentage of the sample. With Black/Black mix women there was a slight decrease in baby problems, and in Hispanic/Hispanic mix mothers a still greater decrease of baby problems. This latter group points not only to an inverse relationship between maternal report of abuse and baby problems by race/ethnicity, but is as well the only significant finding demonstrated in this table (Hispanic/Hispanic mix, $p = .028$) which is not in the direction of the hypothesis.

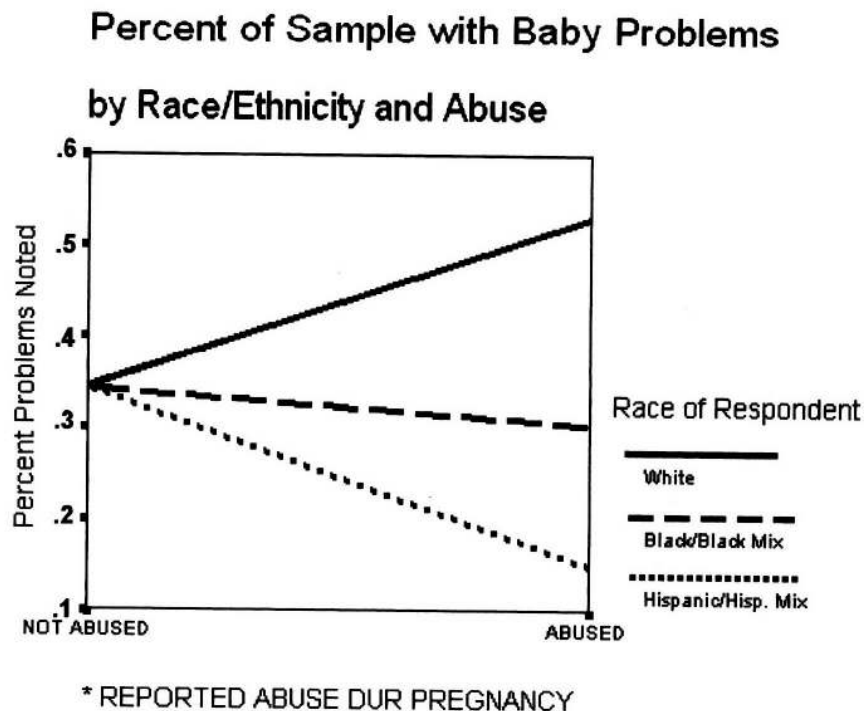
Table 4
Baby Health Problems by Mother's Report of Abuse
Controlling for Race/Ethnicity

<i>Baby Problems</i>	<i>Self-Reporting</i>		χ^2 (<i>p</i>)
	<i>Not Abused</i>	<i>Abused</i>	
Any Problems (White)	34.6%	52.9%	1.992 (.129)
Any Problems (Black or Black Mix)	34.2%	30.4%	.652 (.243)
Any Problems (Hispanic or Hispanic Mix)	34.5%	14.8%	4.276 (.028)
Any Problems (All Others)	35.3%	16.7%	1.454 (.203)

p < .05.

DISCUSSION This study examined the impact of ethnicity and maternal abuse during pregnancy with behavioral responses in human newborns. The findings tended not to support the hypothesis that maternal abuse affects baby problems of newborn crying, hyperactivity, respiratory distress, hypoactivity, Apgar scores or a combination of these. The exception to these findings was in newborn variables for Caucasian women which were in the predicted direction, that is, with abuse reported, there are more baby problems. However, due to the lack of statistical significance, this result needs to be interpreted with caution. Findings for the Black mothers' newborns were difficult to interpret. With reported abuse the results revealed less problems in the newborn's behaviors than would be expected. Likewise this kind of inverse relationship was demonstrated in the Hispanic mothers and significantly so. These findings highlight several issues that are critical for future studies. First, reliance on self-report measures of maternal variables alone may be problematic in under- or over-reporting, leading to misclassifications. Such misclassifications could be responsible for the inconsistent or inverse relationships found in these results.

Figure 2
Percent of Sample with Baby Problems by Race/Ethnicity and Abuse



Second, it may be that the measurement indices of the newborns were not sensitive enough to measure subtle differences (e.g., for hyperactivity: categories of "noted" or "not noted"). Further development and refinement of behavioral measuring techniques may be needed in order to construct more accurate tools with greater predictive powers. Third, it is possible that Black and Hispanic mothers do not experience abusiveness as a stressor. Or perhaps, these mothers turn their love and attention inward to their prenatals as a way nurturing themselves when they experience abuse from their adult relationships. It is also possible that the theory related to the negative effects of abuse in ethnically diverse mothers during pregnancy needs rethinking. Fourth, the influences of maternal Stressors on newborns may either be not present, or not obviously present. It is plausible to think that a latency in the development of behavioral sequelae can occur, as in the research of Farrington (1991). Another possibility could be that a triggering by a certain external or internal state directly evokes the stored memories of the fetal violence-with or without conscious awareness by the individual, consistent with principles of conditioning paradigm within a biological or hormonal context. The more similar the contextual stimuli are to the conditions at the time of the prenatal trauma, the more likely the probability of retrieval and the more difficult the individual's pre/perinatal trauma, the less serious a life situation is needed to expose the original condition. This would at least explain the question as to the senselessness of some violence where there was no apparent reason for the provoked attack. Another closely related interpretation could be that early conditioned experiences show up later as they interact with other events over time (i.e., cumulatively). In sum, not enough is known about how the processes during development in utero occur, so the current hypothesis of maternal abuse causing newborn behavioral problems may have been too general. Possible next steps would be to find new ways to measure the experience of abuse in pregnant women and the behaviors of newborns. Optimally, a well-conceived and methodologically-sound longitudinal study for the origins of violent behaviors needs to be designed, carried out, and evaluated. Another option would be to explore further the perceived

experience of the abuse in diversity. This would perhaps yield better evidence of relationships between maternal abuse and newborn or infant behaviors in these populations. An aim of keeping a more detailed history in order to examine abuse and the critical prenatal periods (i.e., trimesters) would be advised as well.

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