

# Induced Abortion and Child-Directed Aggression Among Mothers of Maltreated Children

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## Citation

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## Abstract

**Background:** The purpose of this study was to explore the relationship between maternal history of induced abortion and subsequent frequency of child-directed aggressive behavior in a sample of mothers of children who have been abused or neglected. The mothers were either the perpetrators of the maltreatment or they allowed someone else to mistreat their children.

**Methods:** The participants were 237 mothers who were residents of Baltimore and were receiving Aid to Families with Dependent Children (AFDC) at the time interviews were conducted in the 1980s. Women with and without a history of abortion were compared relative to child-directed physical aggression after controlling for the experience of a non-voluntary perinatal loss as well as socio-demographic, family of origin, and partner aggression variables associated with the choice to abort.

**Results:** Abortion history was associated with more frequently maternal slapping, hitting, kicking or biting, beating, and use of physical punishment in general.

**Conclusion:** In addition to contributing to the literature on factors related to the frequency of engaging in physically aggressive behaviors, this study adds to our knowledge of variables associated with the choice to abort.

## BACKGROUND

Child maltreatment is one of the most troubling social problems of contemporary times, with an estimated 896,000 substantiated cases of abuse and/or neglect in the United States in 2002 [1]. In the same year, 1,400 children died as a direct result of abuse or neglect [1]. A great deal of research attention has focused on the etiology of child maltreatment in an effort to understand causal mechanisms and to improve intervention and prevention efforts. After decades of intense study, the consensus among scholars of child maltreatment is that the causes are multifaceted, with risk factors interacting in complex and frequently distinct ways from case to case [2]. As complex as this area of investigation is and as difficult as it may be to predict child maltreatment in the individual situation, the available literature has provided strong support for several risk factors. The more robust predictors of child abuse and neglect include poverty, parental childhood history of maltreatment, social isolation, poor parenting skills and unrealistic parenting expectations, poor coping skills, low self-esteem and other psychological problems, as well as substance abuse [3,4,5,6,7,8].

Among the many possible variables associated with heightened risk for child maltreatment that have received minimal systematic research attention are maternal reproductive history in general and experience of an induced abortion in particular. An hypothesized association between induced abortion and child maltreatment is logical for at least four reasons. First, studies of non-voluntary forms of perinatal loss have revealed heightened risk for aberrant parenting behavior (e.g., lower levels of pleasure, lack of attachment, and higher rates of child abuse) associated with a prior miscarriage or stillbirth [9,10] and for a number of women, induced abortion may be experienced as a non-voluntary loss, which was not freely chosen. Research on abortion decision-making conducted over the last few decades has consistently revealed that women who abort often do so with ambivalence and under the pressure of others and/or in response to situational constraints [11,12,13]. Unresolved grief responses associated with perinatal loss may negatively impact parental responsiveness to child needs [14,15], trigger anger, which is a common component of grief [16,17,18], and/or increase parental anxiety regarding

child wellbeing [15,17]. All these factors may increase the risk of parenting difficulties and increase the likelihood of child maltreatment.

Second, there is strong evidence that maternal-child attachment begins during pregnancy [19,20,21,22], with one study demonstrating that some pregnant women begin to experience feelings of attachment very early in pregnancy [22] and it is conceivable that a disruption in this process through abortion may hinder the development of attachment mechanisms in subsequent pregnancies. Child maltreatment is essentially a physical or emotional manifestation of a disrupted parent-child relationship and although many variables undoubtedly factor into disturbed parent-child relationships, termination of a pregnancy may very well represent one key variable in some cases.

Third, because abortion is a voluntary act, many women may experience significant levels of guilt precipitated by moral or religious conflicts [12,23,24]. Guilt associated with abortion has been found to range from 29.7% to over 75% [12,23,24]. Abortion-related feelings of guilt or shame may hinder the development of feelings of closeness to later born children, lead to feelings of not deserving another child, or foster more generalized negative self-appraisal, and any of these emotional responses may increase the likelihood of negative parenting attitudes and abusive or neglecting parenting behaviors occurring [25].

Fourth, abortion has been found to be associated with a heightened risk for mental health problems, including anxiety [26,27], depression [28,29], and substance use [30,31], which as indicated previously, may heighten the risk of child maltreatment. Substance abuse is a particularly strong risk factor as it is implicated in almost half of all substantiated cases of child maltreatment [8].

A few recent studies have identified relations between maternal history of abortion and problematic parenting, including lower emotional support and heightened risk for both child abuse and neglect [25,32,33]. The current study was undertaken in an effort to build on these studies and to add to the available literature pertaining to variables associated with more frequent physical aggression directed toward children. This study focused exclusively on mothers of children who have been maltreated to test the hypothesis that women who have had an abortion will report more frequent use of child-directed physical aggression than women who have not had an abortion after controlling for the experience of a non-voluntary perinatal loss as well as

socio-demographic (e.g., age, marital status, age, parity, education, ethnicity, religion, and daily stressors), family of origin, and partner aggression variables associated with the choice to abort. Previous research supports exploration of variables from each of the above categories as potential correlates of the choice to terminate one's pregnancy [34,35,36,37,38].

## **METHODS**

### **PARTICIPANTS**

The respondents in this study consisted of 237 women who were residents of Baltimore, Maryland in the mid 1980s and were receiving Aid to Families with Dependent Children (AFDC). Each participant had at least one living child age 12 or under and the majority (97.5%) were single parents. All the study participants had been identified as having engaged in child maltreatment or as having allowed someone else to mistreat at least one of their children. With 118 of the participants (49.8%), physical abuse was the primary problem and with 119 participants (50.2%), neglect was the central issue. At the time of testing, the participants ranged in age from 19 to 50 years ( $M=28.36$ ;  $SD = 5.52$ ). The average number of participant children was 3.46 ( $SD= 1.86$ ), with a range extending from 1 to 11. The sample was predominantly African-American (72.2%), and 27.8% of the participants were Caucasian. At the time of testing, only 3.8% of the sample was working (1.7% fulltime). Seventy-two percent of the participants had fewer than 12 years of formal education, 23% finished high school or earned a GED, and 5% had 13 to 16 years of formal education. For the 77 women who had experienced one or more prior abortions, a mean of 7.6 years ( $SD=3.93$ ) had elapsed since the first abortion.

## **DATA DESCRIPTION AND PROCEDURE**

### **DATA SOURCE**

The data used in this investigation were from the Fertility and Contraception Among Low-Income Child Abusing and Neglecting Mothers in Baltimore, MD 1984-1985 Study [39]. The data were made available for public use at the Data Archive on Adolescent Pregnancy and Pregnancy Prevention, Sociometrics Corporation, Los Altos, California by principle investigator, Susan J. Zuravin. Funding to prepare the data for public distribution was provided by a contract between the U.S. Office of Public Affairs and Sociometrics Corporation to Josefine J. Card and Associates (Contract No. 287-87-0062). The original purpose of the study was to investigate family patterns and contraceptive

behavior among abusive and neglectful mothers. The original investigator, funding agency, and the data archive do not bear any responsibility for the analysis or interpretation of data offered in this report.

### **PHYSICAL ABUSE SEGMENT**

The 118 mothers comprising the physical abuse segment were self-selected from a sample of 152 abusive mothers (78% interview completion rate), who were identified from a cohort of 1,744 families receiving Child Protection Services (CPS) from the Baltimore City Department of Social Services (BCDSS) during January 1984. The following operational definition of physical abuse was employed: "Respondent had as of January 1984 at least one natural child who was the victim of excessive inappropriate physical force by the respondent herself and/or another caretaker and, as a result of the force sustained injuries at a minimum severity level of 4 on the 6-point Magura-Moses Physical Discipline Scale" [39, p. E5-2]. Severity level 4 injuries include bruises, welts, cuts, abrasions, or first-degree burns that are restricted to one or two bodily areas. The principle investigator reported that information derived from CPS case records of 105 of the abusive respondents revealed that in 59% of the situations, the mother was the one who inflicted the injuries (in the remainder of cases the mother was aware of the abuse) and for 60% of the situations child neglect was also a problem. Finally, 39% of the injuries were mild, involving injuries not requiring medical intervention such as bruises, welts, and abrasions; 45.7% of the situations involved moderate injuries such as second degree burns, mild concussions, breaks of small bones, etc.; and 15.2% of the situations were classified as severe, involving third degree burns, internal injuries, severe concussions, breaks of long bones, etc. [39].

### **NEGLECT SEGMENT**

The 119 mothers included in the final neglect segment were self-selected from a sample of 164 neglecting mothers (73% interview completion rate), who were identified from the same cohort of families receiving CPS from the BCDSS during January 1984 that was used to identify the abusive mothers. The original sample of 164 neglecting mothers was constructed by including all identified Caucasian women and a random sample of non-Caucasian families. The following operational definition of neglect was used in the study: "Respondents neglected one or more children in at least one of the following eight areas: physical health care, mental health care, nutrition/diet, personal hygiene, household sanitation, physical safety in the home, supervision of

activities, and arrangements for substitute childcare. In addition, as of January 1984, the respondent had no children who met the study definition for physical abuse." Information derived from CPS case records of 102 neglecting respondents reported by the principle investigator revealed that the two most common forms of neglect were inadequate physical health care (48%) and inadequate supervision (44%) [39]. In addition, 75% of the cases involved at least two types of neglect and in 36% of the situations the child had experienced obvious adverse physical consequences due to the neglect [39].

### **DATA COLLECTION**

The data were collected in 1984 and 1985 by female interviewers during 90 minute interviews in the respondents' homes [39]. The original questionnaire consisted of 1,372 closed-end items that assessed demographic information, childhood experiences, mental health problems, substance use, employment aspirations, intimate relationships, self-esteem, reproductive history, and family planning behaviors. The specific variables used in this study are described below.

### **VARIABLES EXTRACTED**

Reproductive history information was used to identify women with a history of one abortion (n=49), two or more abortions (n=28), and no abortions (n=160). Abortion history served as the independent variable (abortion vs. no abortion). Six single-item measures of the frequency of engagement in various forms of aggressive behaviors directed at any of the respondents' children were extracted for use as dependent variables. These items specifically measured how often the respondents engaged in the following behaviors over the previous year: throwing objects at a child, shoving a child, slapping a child, kicking/biting a child, hitting a child, and beating a child. A seventh dependent variable assessed the frequency of engagement in any form of physical aggression directed toward a child over the previous year.

A single item measure of previous non-voluntary perinatal losses (miscarriage and stillbirth) was extracted to enable control for the variable. In addition, several single item variables from the interview data were extracted and explored as potential covariates of the choice to abort. These included the following socio-demographic variables: age, marital history, race, years of schooling, how religious the respondent reported being, attendance at religious services, number of children, number of residences in past 5 years, neighborhood quality, employment status, and worries about income. Further, the frequency of several partner aggression

variables were examined as correlates of the choice to abort and included threatening to harm with and without a weapon, beating, hitting, kicking, slapping, shoving, throwing objects, and insulting. Finally, a number of family of origin predictors of the choice to abort were explored: number of parents in the household during the mother's childhood, amount of time spent alone as a child, ever having run away from home as a child, not having had someone the respondent could confide in prior to age 18, having felt as though the respondent was never listened to during childhood, not having felt close to one's mother, having experienced frequent criticism from one's mother during childhood, having felt the respondent received very little attention as a child, not having felt loved by one's parents as a child, and feeling as though one's parents wanted too much from the respondent. Significant predictors of the choice to abort are specified below in the results section.

## RESULTS

Preliminary analyses were conducted to identify possible socio-demographic, family of origin, and boyfriend/husband aggressive behavior predictors of the choice to abort to enable control for any identified predictors in the primary analyses. A series of phi coefficients and point biserial coefficients were computed depending on the level of measurement of the respective independent variables with abortion history functioning as a dichotomous dependent variable in each analysis. When the independent variable is categorical, the phi coefficient is the correct analysis and when the dependent variable is continuous, the point biserial correlation coefficient is the test employed. Table 1 contains data pertaining to the five variables identified as significant predictors of the choice to abort. Four of the five variables dealt with the respondents' childhood relationships with their parents.

**Figure 1**

Table 1: Significant predictors of the choice to abort.

Variable	Correlation coefficient	p-value
Marital status	.13	.041
Having been close to one's mother during childhood	.16	.015
One's mother having frequently criticized the respondent during childhood	.13	.048
Parents having wanted too much from the respondent during childhood	.15	.018
Not having felt loved by one's parents during childhood	.18	.006

Table 2 provides the frequency data for the outcome measures based on abortion history. As indicated by these data, the most commonly reported physically abusive behaviors included hitting, slapping, and shoving.

**Figure 2**

Table 2: Frequency of abusive behaviors in the past year reported by women with a history of child maltreatment based on abortion history.

Variable	Frequency	No Abortion	Abortion
Throw object at a child	Never	135 (90%)	57 (82.6%)
	Once	5 (3.3%)	3 (4.3%)
	Twice	5 (3.3%)	2 (2.9%)
	3-5 times	2 (1.3%)	4 (5.8%)
	6-10 times	0	0
	11-20 times	0	0
	More than 20 times	3 (2.0%)	3 (4.3%)
Shove a child	Never	87 (58%)	32 (46.4%)
	Once	8 (5.3%)	3 (4.3%)
	Twice	17 (11.3%)	5 (7.2%)
	3-5 times	13 (8.7%)	9 (13%)
	6-10 times	6 (4.0%)	5 (7.2%)
	11-20 times	5 (3.3%)	5 (7.2%)
	More than 20 times	14 (9.3%)	10 (14.5%)
Slap a child	Never	83 (55.3%)	29 (42.0%)
	Once	16 (10.7%)	2 (2.9%)
	Twice	10 (6.7%)	5 (7.2%)
	3-5 times	15 (10.0%)	14 (20.3%)
	6-10 times	7 (4.7%)	5 (7.2%)
	11-20 times	9 (6.0%)	5 (7.2%)
	More than 20 times	10 (6.7%)	9 (13.0%)
Kick or bite a child	Never	148 (98.7%)	62 (89.9%)
	Once	1 (.7%)	0
	Twice	0	1 (1.4%)
	3-5 times	0	2 (2.9%)
	6-10 times	0	0
	11-20 times	0	0
	More than 20 times	1 (.7%)	4 (5.8%)
Hit a child	Never	89 (59.3%)	29 (42%)
	Once	7 (4.7%)	3 (4.3%)
	Twice	12 (8%)	4 (5.8%)
	3-5 times	15 (10%)	9 (13%)
	6-10 times	7 (4.7%)	8 (11.6%)
	11-20 times	5 (3.3%)	4 (5.8%)
	More than 20 times	15 (10%)	12 (17.4%)
Beat a child	Never	110 (73.8%)	43 (62.3%)
	Once	5 (3.4%)	4 (5.8%)
	Twice	9 (6.0%)	1 (1.4%)
	3-5 times	7 (4.7%)	6 (8.7%)
	6-10 times	7 (4.7%)	1 (1.4%)
	11-20 times	3 (2.0%)	5 (7.2%)
	More than 20 times	8 (5.4%)	9 (13%)
Use of physical punishment	Never	44 (29.5)	13 (18.5)
	Once	13 (8.7)	4 (5.8)
	Twice	20 (13.4)	4 (5.8)
	3-5 times	29 (19.5)	19 (27.5)
	6-10 times	18 (12.5)	7 (10.1)
	11-20 times	6 (4.0)	7 (10.1)
	More than 20 times	19 (12.8)	15 (21.7)

Among women with a history of maltreating their children, those who had an abortion in the past were hypothesized to engage in more frequent physically aggressive behavior directed toward their children than women without an abortion experience. In order to test the hypothesis, two analyses were conducted: 1) a multivariate analysis of covariance (MANCOVA) with abortion history as the independent variable, six forms of aggressive behaviors as the dependent variables (throwing an object, shoving, slapping, kicking/biting, hitting, beating), and non-voluntary

forms of perinatal loss and the five variables identified as significant predictors of the choice to abort entered as covariates; 2) a univariate analysis of covariance (ANCOVA) with abortion history as the independent variable, use of any form of physical punishment as the dependent variable, and non-voluntary forms of perinatal loss and the five variables identified as significant predictors of the choice to abort entered as covariates. Both the MANCOVA and the ANCOVA procedures enable comparison of means based on independent variable groups, with the former analysis developed to accommodate two or more dependent variables and the latter analysis restricted to use wherein only one dependent variable is tested. These data analysis procedures enable inclusion of multiple covariates.

The results are provided in Table 3 and indicated that women with a history of abortion, when compared to women without a history of abortion, reported more frequent slapping, kicking/biting, hitting, beating, and use of any form of physical punishment in the past year. Frequency of throwing objects and shoving were the only forms of physical aggression not found to differ based on abortion history after the covariates were entered into the analysis.

**Figure 3**

Table 3: Abusive behavior comparisons among women with a history of child maltreatment based on abortion history

Multivariate effect	Dependent variables*	Univariate effects	Abortion M (SE)	No abortion M (SE)
F(6, 211) = 2.53, p = .022	Threw object	Ns		
	Shove	F(1,216) = 4.62, p = .033	2.10 (2.32)	1.44 (2.03)
	Slap	F(1,216) = 6.77, p = .010	2.22 (2.33)	1.44 (1.98)
	Kick/bite	F(1,216) = 9.42, p = .002	.46 (1.49)	.05 (.50)
	Hit	F(1,216) = 7.68, p = .006	2.35 (2.36)	1.47 (2.09)
	Beat	F(1,216) = 5.18, p = .024	1.55 (2.03)	.91 (1.76)
F(6, 201) = 2.24, p = .041**	Threw object	Ns		
	Shove	Ns		
	Slap	F(1,208) = 5.01, p = .026	2.13 (.25)	1.45 (.17)
	Kick/bite	F(1,208) = 8.79, p = .003	.48 (.12)	.05 (.08)
	Hit	F(1,208) = 6.41, p = .012	2.32 (.27)	1.50 (.18)
	Beat	F(1,208) = 4.14, p = .040	1.50 (.24)	.90 (.16)
	Use of physical punishment	F(1,216) = 7.52, p = .007	3.22 (.25)	2.39 (.17)
	Use of physical punishment	F(1,206) = 6.72, p = .010**	3.20 (.26)	2.40 (.17)

\* Each dependent variable was measured on the following scale: 0=never, 1=one time, 2=two times, 3=three to five times, 4=six to ten times, 5=eleven to twenty times, 6=more than twenty times in the past year.

\*\*Controls for non-voluntary forms of perinatal loss, marital status, not always having been close to one's mother, one's mother having frequently criticized the respondent, parents having wanted too much from the respondent, and the respondent not having felt loved by one's parents.

## CONCLUSIONS

The purpose of this study was to explore maternal history of induced abortion as a possible variable linked with increased frequency of child physical abuse in a sample of mothers who have either personally mistreated their children or allowed someone else to do so. The findings indicated that women who had an abortion history reported more frequent slapping, hitting, kicking or biting, beating, and use of

physical punishment compared to women without an abortion history, after statistical controls were instituted for other forms of perinatal loss and socio-demographic, family of origin, and boyfriend/husband aggressive behaviors identified as significant predictors of the choice to abort. As suggested in the introduction segment of this article, abortion should not be assumed to be an experience that is void of intense emotions for all women. Consequently, an association between abortion and frequency of aggressive acts could be due to unresolved bereavement issues associated with the abortion experience, disruption of mother-child attachment mechanisms, feelings of abortion-related guilt or shame, and/or negative mental health effects of the abortion. Future research on abortion and parent aggression should include assessments of these likely mediating mechanisms.

A second explanation for the findings of this study is that certain personal or situational variables are related to both the choice to abort and to more frequent physical aggression. To reduce the probability of third variables operating, many variables related to the choice to abort were controlled (marital status, not always having been close to one's mother, one's mother having frequently criticized the respondent, parents having wanted too much from the respondent, and the respondent not having felt loved by one's parents). Nevertheless, other unmeasured variables related to maternal psychological characteristics may have been related to both the choice to abort and to more frequent aggressive behavior. For example, perceived stress, impulsivity, low empathy, the tendency to avoid intimacy/emotional closeness, self-absorption, and or low tolerance for/disinterest in children may have influenced the decision to abort and the tendency to engage in more frequent aggressive behaviors. Future research efforts should include a wide range of attitudinal and personality variables which would assist in additional interpretation of the meaning of the relationships observed between maternal history of induced abortion and frequency of physically aggressive behaviors. However, regardless of whether or not there are unmeasured third variables operative, the results of this study revealed distinct differences in the frequency of aggressive behaviors inflicted on children based on maternal history of abortion. Abortion may be a primary cause of the differences detected or related to one or more central causes, but it does appear to be a marker variable for more frequent aggression. This information alone is useful to professionals who conduct risk assessments and treat women with a history of child maltreatment. Professionals might

sensitively inquire about any history of abortion and related, unresolved negative emotions when working with women engaged in or at risk for aberrant parenting.

As indicated earlier, a great deal of research attention has been devoted to the etiology of child maltreatment, with a number of parent, child, and situational variables identified as risk factors. However, considerably less energy has focused on identifying variables associated with differential levels of abuse defined in terms of frequency and/or severity. One relatively recent five year prospective study revealed that a negative home environment expressed through the behavior of individual parents and or marital conflict predicted more frequent and severe physical punishment [40]. Many variables associated with more pronounced physical abuse are similar to those that are predictive of abuse occurring in the first place (e.g., social isolation, mental health problems, low income) [41,42]. Similarly, pregnancy loss was identified in previous studies as a predictor of child maltreatment [25,32] and the results of this study suggest that induced abortion may exacerbate the tendency to engage in child-directed aggression at least as measured in terms of frequency. In this study, respondents were not asked to rate the severity or intensity of each aggressive episode and future research on the topic should explore a possible association between maternal history of abortion and the severity of child-directed aggressive behavior.

In addition to contributing to the literature on factors related to the frequency of engaging in physically aggressive behaviors among mothers of children who have been maltreated, the current study adds to our knowledge of variables associated with the choice to abort. Of particular interest here is the fact that only a handful of previously conducted studies have considered family of origin predictors of the choice to abort. The results of this study revealed that women who had parents who were critical, demanding, and not very nurturing were inclined to choose abortion. The choice to abort for many women may have been grounded in fears of perceived inability to parent, internalized parental criticisms, lack of parental support, anxiety associated with showing and receiving love, expectations of failure in parenting, and having experienced negative parental role modeling. A more concerted effort should be made to identify the extent to which such experiences factor into decisions to terminate a pregnancy. Effective identification of psychological, as opposed to more concrete situational determinants of the choice to abort, may require a data collection strategy such as extensive

interviewing, which delves deeper than the typical survey methodology.

In an article pertaining to attachment issues in perinatal bereavement, Uren and Wastell [43] noted that individuals whose childhood experiences are characterized by loss, rejection, or instability are more inclined to become involved in unhealthy adult relationships and to experience more trauma in association with perinatal loss. These individuals are also less likely to develop effective problem-solving strategies as parents and are more likely to be stress intolerant. Rather than focusing primarily on women's immediate life situations, future research pertaining to the psychology of abortion decision-making and adjustment should explore women's childhood relationships with their parents. Exploration of attachment processes in the context of unplanned pregnancy and abortion has been minimal; however, sexual acting out resulting in an unintended pregnancy seems to have some basis in unresolved conflicts surrounding separation from attachment figures [44,45]. In a study of over 600 women attending an antenatal clinic, Kitamura and colleagues found that more than one abortion when compared to only one abortion was associated with a childhood history of maternal separation for 12 months or more before age 16 and low levels of perceived maternal care during childhood [46]. Allanson and Astbury [47] reported that women with anxious and avoidant insecure attachment styles, compared to those with secure attachment, were more likely to have reported one or more previous abortions. Further, Speckhard [49] reported that a rejecting or ambivalent relationship with one's parent(s) can be reenacted, or reexperienced in abortion if the fetus is projectively identified with the childhood self, thus passing the legacy of one generation on to the next. Finally, in a study comparing women who decided to abort early in pregnancy versus delay the decision until the 2nd trimester, women who decided to abort early were more likely to report primary caregivers who were ambitious, intellectual, successful, judgmental, and punitive [48]. Therefore, not only might the choice to abort have a basis in childhood relationships, but the timing of an abortion might be differentially related to parenting styles exposed to during childhood.

Even though the current study was limited by a relatively small sample size, self-reported outcome measures, and an overrepresentation of African-American women, it was the first to focus exclusively on the relationship between abortion history and frequency of parental aggressive

behaviors in a sample of mothers of children who have been abused and or neglected. Similar research with more normative samples has been quite limited. In fact, the broader topic of the association between abortion and subsequent parenting has received minimal attention in the published literature. Perhaps this is due to the fact that for years abortion was construed to be a benign medical procedure carrying little if any potential for lasting adverse effects. However, as noted earlier, more recent research has indicated that abortion is not a decision that is taken lightly by most women [11,12] and abortion has clearly negatively impacted some women's lives [26,27,28,29,30,31]. Moreover, the last several years have brought greater understanding that abortion for many women is an issue with profound physical, psychological, spiritual, and lifestyle dimensions that are intimately tied to many aspects of their lives [12,50]. More research is needed to examine the depths of women's feelings associated with an abortion and to investigate how these emotions might be connected with subsequent parenting emotions, cognitions, and behaviors. As future efforts are geared in this direction, researchers should be open to the possibility of negative abortion experiences leading to wide range of possible effects. For example, negative emotions associated with an abortion experience may propel some women into a pattern of overzealous, overprotective parenting based on fears of losing a subsequent child as opposed to initiating or contributing to a cycle of abusive and/or neglectful parenting. As a more substantive understanding of the depth and breadth of women's emotional responses to abortion is developed, the range of possible effects on parenting should become more apparent.

In conclusion, future studies that examine the link between abortion and parenting should investigate factors that influence abortion decision-making, women's personal conceptualizations of the meaning of abortion, emotions associated with the decision and the abortion itself, negative post-abortion emotional reactions, coping strategies, perceptions of personal consequences, and the quality of women's relationships with their children. Ideally all or most of these variables will be examined in the context of one large investigative effort with inclusion of samples of women with and without a history of maltreatment.

## COMPETING INTERESTS

None

## AUTHORS' CONTRIBUTIONS

PC contributed to the conception and design, acquisition of data, data analysis, drafting and revision of the manuscript, and approves of the final version submitted.

VR contributed to the conception and design, drafting and critical revision of the manuscript, and approves of the final version submitted.

CC contributed to the conception and design, critical revision of the manuscript, and approves of the final version submitted.

CM contributed to the conception and design, critical revision of the manuscript, and approves of the final version submitted.

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