The Psychological Pain of Perinatal Loss and Subsequent Parenting Risks: Could Induced Abortion be more Problematic than Other Forms of Loss

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Abstract: This dual purpose of this review was to organize and synthesize what is known about women's psychological and behavioral responses to perinatal loss and examine perinatal loss as a predictor of compromised parenting. The conditions surrounding distinct losses (miscarriage, relinquishment of a child for adoption, and abortion) are highly variable necessitating examination of the differential impact of the various forms of loss on women's mental health and parenting. Preliminary assessment of relevant literature suggests the psychological experience and the cultural context of abortion may render this form of perinatal loss particularly damaging to the parenting process.

INTRODUCTION

The rapid physical transformations characterizing pregnancy have been a source of fascination for centuries and pregnancy as a significant biological event has been subject to extensive scientific analysis. However, it is only in the last couple decades that social scientists have recognized pregnancy as a powerful psychological experience. Currently there is appreciation for pregnancy as a complex inter-dependent process wherein physical changes combine with significant mental and emotional developments to foster emergence of the maternal identity and mother-child attachment.

Motherhood is a normative human experience which provides an extraordinary opportunity for women to participate in a relationship unlike any other. Despite the enormous amount of energy, great responsibility, and the many large and small stressors that accompany parenting, motherhood offers a unique opportunity to love and to be loved, to learn and to guide, and to grow both individually and relationally. Numerous studies have documented positive psychological characteristics associated with motherhood including increases in life satisfaction, self-esteem, empathy, restraint, flexibility and resourcefulness in coping, and assertiveness [1-6]. In a nationally representative sample of 2000 mothers, Erickson and Aird [3] reported that 93% indicated the love they felt for their children was unlike any other and over 80% of the respondents viewed motherhood as the most important thing they had done in their lives.

Research indicates that in no other relationships are so many dreams, hopes, needs, thoughts, feelings, beliefs, meanings, and expectations projected onto the other as in the parent-child relationship [7]. Mothers frequently begin this process of projection onto a fantasized child well before childbirth [7]. In addition to bestowing a multitude of mental health benefits, motherhood is associated with decreased risk for negative psychological consequences such as feelings of hopelessness, loneliness, detachment, emptiness, inner turmoil, and social inadequacy [8].

Just as the advent of a child is often one of life's most significant opportunities for personal fulfillment, loss of a child before birth or shortly thereafter can be a profound source of suffering, leaving grieving parents to wrestle with innumerable, largely unanswerable questions. As noted by Callister [9] "Perinatal losses include the loss of the creation of a new life; the loss of the hoped for, planned for, anticipated and loved child; the loss of dreams and hopes; and the loss of an extension of both parents. The death of a child is not part of the natural order of life, since children are not expected to predecease their parents. When one loses a parent through death, the past is lost. In contrast, when a child dies, one has lost the future".

OBJECTIVES OF THIS REVIEW

The research literature devoted to understanding psychological responses to perinatal loss has expanded in recent years and researchers are gaining an appreciation for the broad range of responses, the conditions that foster particular trajectories, and the amount of time women need to recover from a painful loss. Although the body of research pertaining to possible associations between perinatal loss and parenting quality is not well-developed, knowledge derived from developmental psychology (maternal-fetal attachment and parenting) combined with the emergent literature on women's mental health prior to and following perinatal loss does suggest logical associations between losing a fetus or child and parenting that merit more empirical investigation.

The primary objectives of this review include the following: 1) to organize and synthesize what is known about women's psychological and behavioral responses to various forms of perinatal loss; and 2) to clarify possible pathways between perinatal loss and compromised parenting. The review begins with a discussion of basis statistics regarding the prevalence of three forms of loss and an overview of well-established predictors of each distinct

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form of perinatal loss. Next a synopsis of the published literature related to maternal fetal attachment is offered to clarify a central reason why termination, whether voluntary or involuntary, carries potential to adversely impact women's mental health. Then negative responses to miscarriage, abortion, and adoption are addressed.

Empirically-based and theoretical linkages between perinatal loss and subsequent parenting behavior are explored in the final section. The conditions surrounding the different losses are highly variable rendering more nuanced answers to the global question of whether or not the psychological pain of perinatal loss is predictive of the quality of parenting behavior long overdue. Preliminary assessment of the relevant literature indicates that the psychological experience and the cultural context of induced abortion may render this form of perinatal loss particularly damaging to the parenting process. Therefore, more attention is given to the association between induced abortion and parenting toward the close of this article.

OVERVIEW AND PREDICTORS OF DISTINCT FORMS OF PERINATAL LOSS

The term perinatal loss technically refers to both involuntary losses (miscarriage, ectopic pregnancy, stillbirth, and the experience of neonatal death) and voluntary losses (induced abortion and giving up a child up for adoption). Price [10] recently reported that estimates in the literature indicate that between 15% and 50% of women experience some form of involuntary pregnancy loss in their lifetime. By the age of 45, approximately 35% of women will have elected to terminate a pregnancy [11]. As indicated above, this paper focuses on the most commonly studied forms: miscarriage, induced abortion, and relinquishment of a child for adoption.

Miscarriage

Constituting up to 20% of all clinically recognized pregnancies, miscarriage is defined loosely in the professional literature as the termination of an intrauterine pregnancy resulting in fetal death prior to anywhere from 20 to 28 weeks gestation [12-16]. Using a nationally representative sample, Price [17] recently reported that approximately 25% of women giving birth have experienced at least one prior fetal death.

The causes of miscarriage are generally categorized as genetic, endocrinologic, anatomic, immunologic, or microbiologic [18]. Chromosomal abnormalities are often the culprit with early miscarriages and recurrent miscarriages [18]. As noted by Klier and colleagues [18], there are many additional risk factors for miscarriage that have been identified in one or more studies: caffeine, tobacco, other drugs, toxins, electromagnetic fields, history of multiple induced abortions, physical exertion, and stressful life events. Demographic correlates of multiple miscarriages include being black, low socio-economic status, and low educational attainment [17]. Physical causes of recurrent miscarriage include uterine abnormalities, autoimmune factors, hypercoaguable states, endocrinological aberrations, and anatomic factors including polycystic ovaries [18].

Induced Abortion

An unintended pregnancy is perceived by most women to be very stressful [19, 20], with approximately 50% of unintended pregnancies resolved through abortion [21]. The abortion rate in the U.S. is approximately 1.3 million abortions per year [22], with 21% of all pregnancies ending in abortion [23].

The Guttmacher Institute [23] has provided basic demographic information pertaining to women who seek abortions. Approximately 20% of abortions are obtained by teenagers, 25% are done on women over 30, and the most common time for an abortion is when women are in their 20s. Most women who have abortions are unmarried, with less than 25% of abortions performed on married women. Whites represent 69% of the population, yet account for only 41% of U.S. abortions; whereas blacks make up 12% of the nation's population, yet they have 32% of the abortions performed. Hispanics comprise 13% of the population, but they obtained 20% of the nation's abortions. Only one in four women who seek an abortion in the U.S. had an income level above 300% of the poverty line ($42, 000); however only 21% of women described inadequate finances as the main reason for choosing abortion. Catholics and Protestants have abortion rates that are roughly consonant with their proportion of the population with Catholics obtaining 27% of abortions and Protestants making up 43% of those having abortions.

Of the 1.3 million abortions in the U.S. each year, about 90, 000 occur due to the health of the fetus (3%), health of the mother (3%), or as a result of rape or incest (1%) [23]. Coleman *et al.* [24] reviewed the literature pertaining to the primary non-physical reasons women choose first trimester abortions. Commonly reported reasons included concerns with single parenthood, partner relationship problems or concerns that a continued pregnancy would interfere with one's current intimate relationship, future education, career, or personal plans, age, parenting readiness, insufficient financial resources, desire to postpone childbirth, and feeling as though one lacks time and energy for another child. Under 6% of all abortions are performed beyond the 16th week with not realizing one is pregnant reported to be the most frequently cited reason. Other common reasons in order of prevalence include the following: difficulty in making the arrangements to have an abortion, being afraid to tell a partner, needing time to make a decision, hoping one's relationship with one's partner would change, and a late diagnosis for fetal abnormality.

Adoption

Adoption is much less common in the U. S. compared to abortion, with less than 3% of white unmarried women and less than 2% of black unmarried women [25] electing to relinquish a child at birth or soon after. Currently, between 1 and 5 million U.S. residents are adopted [26].

In a review published in 2005, Wiley and Baden [26] summarized the results of nine empirical U.S. and Canadian studies related to factors that predicted the decision to relinquish a child for adoption. Among the robust predictors across various studies were age, race, socioeconomic status,

education, preference of the birth grandmother, vocational goals, the quality of the relationship with the birth father, and living arrangements. Chippendale-Bakker and Foster [27] noted in their study related to the choice to relinquish a child that most women were motivated by a desire to provide a better life for their child. Neil [28] noted that the lives of parents whose children are given up for adoption through the child welfare system are often characterized by economic and psychological deprivation, with many struggling with mental health, substance abuse, and learning impairments.

MATERNAL FETAL ATTACHMENT: TOWARD A DEEPER UNDERSTANDING OF PERINATAL LOSS

The development of maternal identity often has its origins well before pregnancy and long before birth and is achieved when a woman clearly sees herself in relation to her child and has integrated the maternal role into her sense of self [29, 30]. Maternal identity formation becomes intricately tied to maternal-fetal attachment (MFA), which was defined by Cranley [31] as: "The extent to which women engage in behaviors that represent affiliation and interaction with the unborn child". Condon [32] described MFA with respect to affective experiences which included closeness, tenderness, pleasure in interaction, distress at fantasized loss, conceptualization of the fetus as a little person, and intensity of preoccupation (time spent thinking about, talking to, dreaming about, or palpating the fetus). MFA usually develops based upon an increasingly elaborate mental representation of the fetus [32]. In general MFA involves a constellation of evolving emotions, cognitions, and behaviors which demonstrate parental commitment and affection. Among the commonly recognized elements of MFA are: (1) nurturing, e.g., eating well, abstaining from harmful substances like alcohol; (2) comforting, e.g., stroking the belly, naming and talking with the baby; (3) physical preparation, e.g., buying baby clothes and equipment, painting the baby's room, and practicing relaxation techniques; and (4) educational preparation, e.g., reading about child development and attending antenatal classes [33]. Research indicates that only 8% of women experience minimal attachment to the fetus during pregnancy or actually feel a range of hostile or aggressive emotions directed at the fetus [34, 35].

With an extensive scientific literature that has established the existence of MFA, the focus is now on pinpointing when the process begins. There is evidence that many women start to bond very early in pregnancy [29, 36]. Interestingly even when women are intending to abort there may be evidence of MFA. In an Australian study [37], a significant segment of the sample of women attending an abortion clinic reported fantasies about the child and engaged in attachment behaviors such as talking to their fetus (40%) and rubbing their stomachs (30%). One participant in a study by Patterson and colleagues [38] described the bonding experience prior to her abortion "I believed in the bonding between us which was insane because anything could have happened to me…but somehow what kept me going was this - it wasn't exactly your regular kind of love, but it was a very special thing for this person (fetus)". A subject in a study by Keros *et al*. [39] conveyed similar feelings of attachment "…I had maternal feelings when I understood that I was pregnant…I try to convince myself that I do not want children".

Gestational age, ultrasound, fetal movement, pregnancy history, and the mother's own attachment history have been identified as key variables influencing the rate and degree of MFA [4, 29, 40-44]. Of all these variables, increased MFA based on advancing gestational age is most consistently reported. In an integrative review of the literature examining 40 studies, Cannella [45] reported: "findings in the longitudinal studies on MFA are impressive in that they consistently supported changes towards a stronger MFA as pregnancy progresses, and predicted positive outcomes in the postpartum period" (p. 66). In a study by Beutel *et al*. [46], the fetus had achieved mental representation (dreams, daydreams, internal dialogues, and preparation for the child's arrival) in the majority of women sampled by 10 weeks gestation even when the viability of the pregnancy had not been verified.

Oxytocin, a nanopeptide hormone seems to play a role in the emergence of maternal attachment behavior across pregnancy and the postpartum [47, 48]. Plasma Oxytocin levels tend to be stable across pregnancy and levels early in pregnancy and in the postpartum period have been shown to be predictive of maternal bonding behaviors including gaze, vocalizations, positive affect, affectionate touch, maternal attachment related thoughts, and frequent checking on the infant [47, 48]. Oxytocin is believed to play a central role in maternal bonding *via* stress reduction, enhancing trust, and by integrating psychological and physiological states that foster contact and feelings of calmness necessary to soothe an infant [49]. Neuroanatomical correlates of maternal-infant attachment have also been reported. Work by Noriuchi, Kikuchi and Senoo [50] revealed that certain areas of the mother's brain are specifically involved in maternal responsiveness to the infant: the orbitofrontal cortex, periaqueductal gray, anterior insula, and dorsal and ventrolateral parts of the putamen. The identification of highly elaborate neural mechanisms has factored into the contemporary view of the mother-child relationship as one that is biologically driven, highly complex, and quite powerful.

As MFA became established scientifically, scholarly attention began to be directed toward the psychological consequences of perinatal loss. In the next section, a discussion is provided of likely trajectories when MFA processes are disrupted by perinatal loss.

PSYCHOLOGICAL ADJUSTMENT CHALLENGES SUBSEQUENT TO PERINATAL LOSS

Grief is a natural process, without a precise time frame, and it is experienced in unique ways by individuals based on the characteristics and beliefs of the bereaved, the person lost, the relationship between the bereaved and the deceased, as well numerous situational factors [51-53]. Prigerson and colleagues [54] identified a form of grief that is distinct from normal grief, Post-Traumatic Stress Disorder (PTSD), and depression, which applies exclusively to loss of an attachment figure. In "traumatic grief" there are separation distress symptoms (e.g. yearning, searching, loneliness) and general distress symptoms (e.g. numbness, disbelief, distrust,

anger, sense of futility about the future). Wing and colleagues [55] reported that up to 69% of bereaved mothers express feelings of numbness a month after a perinatal loss and recent studies indicate that shock, numbness, and disbelief are sometimes experienced for years afterwards.

There are commonalities in the ways that individuals respond emotionally to perinatal loss, regardless of whether the loss was voluntary or involuntary. Like other forms of grief, the grief specifically associated with perinatal loss has been found to involve physical, emotional, cognitive, and behavioral reactions [18, 56-61]. Among the common physical reactions to perinatal loss are the following: a poor appetite, disturbed sleep patterns, an empty feeling in the stomach, restlessness, low energy/fatigue, weakness, chest tightness, and pain.

Emotional reactions to perinatal loss include anger, sadness, depression, frustration, self-blame/guilt, numbness, anxiety/panic, persistent fears, nervousness, and nightmares. In a recent study by Barr and Cacciatore [61] "problematic social emotions" including jealousy, envy, shame, and guilt explained 43% of the variance in maternal grief following miscarriage, stillbirth, neonatal death and infant death. Envy was viewed as relevant because bereaved mothers may feel this emotion when comparing their loss to the fortune of other mothers who have given birth to a healthy child. The jealousy is likely to come into play if the grieving father becomes less available psychologically to the mother.

Cognitive reactions to perinatal loss may take the form of intrusive thoughts about the fetus, hallucinations of a baby's cry, visual images of the baby, phantom fetal movement, difficulty with concentration and decision-making, fantasies about the fetus, and diminished situational awareness. Finally, behavioral responses associated with perinatal loss may take the form of substance abuse, avoidance of medical facilities/personnel, avoidance of pregnant women and children, isolation, and impaired social and occupational functioning.

Miscarriage

Approximately 25% of women who experience an involuntary perinatal loss are likely to have persistent, severe negative psychological consequences [62]. Klier, Geller, and Ritsher [18] published an extensive review of the scientific literature on women's emotional health following miscarriage and concluded "in the first six months after the loss event, women are at elevated risk for depressive symptoms, subthreshold depression and depressive disorders". In a second review published by these authors a few years later, Geller, Kerns, and Klier [15] focused on anxiety disorders in the aftermath of miscarriage and concluded that women who miscarry are at an increased risk for experiencing Obsessive Compulsive Disorder, Acute Stress Disorder, and Post-Traumatic Stress Disorder immediately following miscarriage. In a more recently published literature review, Lok and Neugebauer [63] found that elevated anxiety and depressive symptoms were very common after miscarriage with major depressive disorder reported in 10-50% of women who experience an involuntary loss. These authors further noted that post-miscarriage psychological symptoms could continue for 6 months to a year. Gissler and colleagues [64] found that the risk for suicide within one year of a miscarriage was significantly higher (18.1 per 100, 000) than the risk associated with giving birth (5.9) and for women in the general population (5.9).

In an extensive literature review focusing on grief following early miscarriage, Brier [65] concluded that descriptions of grief following miscarriage are highly variable yet are consistent with descriptions of grief related to other significant losses. When a grief reaction occurs, Brier noted that the intensity is analogous to that observed with other major losses and it tends to be significantly less intense by about 6 months. Lok and Neugebauer [63] reviewed the literature pertaining to psychological morbidity following miscarriage and reported that approximately 40% of women who miscarry suffer from symptoms of grief shortly after the loss.

The literature suggests that more intense or longer lasting distress is likely to occur subsequent to miscarriage if the pregnancy was strongly desired, the woman waited a long time to conceive, the woman has no living children, with a history of induced abortion or other losses, if there were few warning signs, when the loss occurs later in the pregnancy, with little social support, or if the woman has a history of coping ineffectively [66]. According to Lok and Neugebauer [63], the primary factors predisposing women to psychological morbidity post-miscarriage include history of psychiatric illness, childlessness, insufficient social support, poor marital adjustment, prior pregnancy loss, and ambivalence toward the fetus.

Induced Abortion

Compared to other forms of perinatal loss, considerably less research has examined the potential for grief and feelings of loss associated with abortion. This oversight is seemingly due to the generally held belief that the optional nature of induced abortion precludes or reduces the likelihood of subsequent distress. However, the choice to abort is often filled with conflicting emotions and external pressures, rendering the decision to abort difficult and sometimes quite inconsistent with the woman's true desire [67]. A study by Lloyd and Laurence [68] revealed that 77% of women who terminated a pregnancy in response to knowledge of fetal malformation, experienced acute grief after the abortion. Further, Kero and colleagues [39] found that approximately 20% of women who experienced an abortion described severe emotional distress in conjunction with the experience, with some of the women reporting they mourned the loss of the child. Finally, Rue and colleagues [69] reported that 33.6% of Russian women and 59.5% of American women who had an abortion responded affirmatively to the statement "I felt a part of me died".

The hypothesis that some women, particularly those who believe they have consented to killing a human being or experience moral conflict over an abortion, are likely to experience psychological difficulties afterwards is not extraordinary. Kero *et al*. [70] found that 46% of women who aborted indicated that their thoughts regarding termination evoked a conflict of conscience. In Conklin and O'Connor's [71] study of more than 800 women who had an

induced abortion, those who reported perceiving the fetus as human experienced significantly more post-abortion negative affect and decision dissatisfaction than women who did not. Belief in the humanity of the fetus is common among women who are seriously contemplating an induced abortion. For example, using semi-structured interviews Smetana and Adler [72] found that 25% of women confronting an induced abortion decision believed that the fetus was a human being and understood induced abortion as terminating a life. In a study led by Rue [69], 50.7% of American women and 50.5% of Russian women who had an induced abortion felt induced abortion was wrong.

The best evidence regarding negative effects of abortion indicates that 10-30% will experience serious psychological problems [73, 74]. With 1.3 million U.S. abortions performed annually [23], a minimum of 130, 000 new cases of abortion-related mental health problems surface each year. Recently published studies with nationally representative samples and controls for many demographic, personal, and situational factors indicate that the experience of abortion puts women at risk for depression [75-78], anxiety [76, 79], and substance abuse [76, 80-82].

Although many studies have been published in psychology and medical journals documenting increased risk for adverse mental health and behavioral effects associated with abortion, very few studies have incorporated appropriate control groups comprised of women who have carried an unintended pregnancy to term. The results of the few studies with such control groups have added significantly to the argument that abortion is detrimental to women's emotional health, as the findings have revealed that when abortion is compared to unintended pregnancy delivered, abortion is associated with significantly more mental health problems [79, 80, 82].

Adoption

Birthmothers who experience difficulty in association with relinquishing a child may report feelings of loss, sadness/depression, guilt, and/or anger [34, 83, 84]. In a recent review of the literature, Wiley and Baden [26] concluded that the following clinical symptoms are sometimes identified in birth parents: unresolved grief, isolation, relationship difficulties, and trauma. However, Wiley and Baden also noted that a few recently published studies indicate that some birth mothers who choose adoption fare better than those who decide to keep their infants on external criteria of well-being such as high school graduation rates.

Condon [34] pointed out four unique psychological aspects of the relinquishment experience. First, he noted that many mothers who choose adoption feel the relinquishment is their only option due to financial hardship and pressure from family and professionals, with such feelings detracting significantly from the experience being fully "voluntary". Second, the child is growing while often remaining inaccessible to the biological mother. According to Condon, because there is always the possibility of reunion, the process of saying goodbye with any sense of finality is hindered. This obstacle to healing can engender disabling chronic grief reactions. Third, birth mothers often lack knowledge of the child leading to a variety of disturbing fantasies, such as the child being sick, sad, angry, or having died. Condon notes that relinquishment-associated guilt may be exacerbated by such fantasies. Finally, women might perceive their efforts to acquire knowledge about their child as being blocked by an uncaring bureaucracy.

Ninety percent of the women in Condon's study reported strong feelings of affection for the infant, both during late pregnancy and in the immediate post-partum period. None reported negative feelings toward the child. Average ratings of sadness and/or depression at the time of relinquishment were between "intense" and "the most intense ever experienced". The amount of anger experienced at the time of giving the child up was rated between "a great deal" and "intense" for the sample and guilt at the time was on average rated as "intense". Condon found that for many women intense emotions did not subside with time and for some of the women he assessed increases were detected across the years. However, the vast majority of those sampled reported they had received little or no help from family, friends, or professionals. More than 50% used alcohol or sedative medication to cope after giving their child up for adoption. Nearly all the women in this study reported that they coped by withdrawing and bottling up their feelings. One third had subsequently sought professional help.

In addition to the results by Wiley and Baden [26] described above, there are studies suggesting that adolescent women who relinquish their infants do not fare poorly compared to their peers who decide to keep their babies. For example, in a five-year longitudinal study by Winges *et al*. [85] comparing the lives of adolescent birth mothers, (116 decided to parent and 76 chose adoption), relinquishers were found to be more likely than parents to remain single and avoid a second birth across the five years. The two groups differed little in educational attainment, and there were no significant group differences in the psychological measures of well-being. Those who chose adoption were more likely to be employed; however their earnings at the close of the study did not differ from those who chose to keep their infants. The authors concluded that the decision did not set the course for the participants' lives.

As indicated by Winges *et al*. [85], women who choose adoption may be more likely than women who do not place a child up for adoption to have personal, social, or demographic characteristics that increase their risk for psychological difficulties. Conflicting results in the literature may therefore be due to insufficient controls for third variables. More research is needed to adequately assess characteristics of mothers who choose adoption, risk factors for psychological problems after relinquishment of a child, and to determine the relative risk of mental health problems associated with adoption compared to the decision to raise a child.

The notion that maternal attachment can be averted by a brisk removal of the infant at birth and the avoidance of subsequent contact between mother and child is strongly contradicted in recent research. Based on the view that open adoption may ameliorate much of the suffering experienced by birth mothers, researchers have examined the effects of open adoptions, with the majority reporting positive

outcomes for birthmothers [86-89]. Contact and provision of information basically served to reduce guilt and fears regarding the child's well-being.

UNIQUE CHALLENGES ASSOCIATED WITH INDUCED ABORTION

In contrast to the pain of involuntary loss, which tends to lessen over time, the pain of abortion is inclined to worsen as women learn more about prenatal development and have children [90-91]. Although involuntary forms of perinatal loss often are very emotionally taxing as indicated previously, there are actually a number of reasons why induced abortion may lead to more severe and insidious psychological distress than miscarriage.

First, abortion is a voluntary act and women are aware that it is their behavior that resulted in the termination; therefore they may experience a considerable amount of guilt, self-criticism, or self-loathing as an extreme form of self-recrimination [70, 92, 93]. Rue and colleagues [69] found that even among women in Russia, where the culture is very approving of abortion, levels of self-reported guilt were very high (49.8%). In a study by Franche [94], a self-critical attitude strongly predicted the intensity of women's grief during a pregnancy that followed an earlier loss. Specifically, self-criticism explained 36% of the variance in women's difficulty coping and 33% of women's despair. Other studies have shown that self-blame in conjunction with involuntary perinatal loss is a strong, statistically significant predictor of the intensity of depression [14].

Second, society understands that women who miscarry or relinquish a child through adoption may experience sadness and grief; however grief after induced abortion is not socially sanctioned because abortion is not acknowledged by our culture as a human death experience. Unlike with miscarriage, opportunities designed to foster healing are rarely routinely available with abortion due to the well-entrenched view that psychological problems in association with abortion are uncommon. For example, professionals who work with women who have lost a baby through miscarriage or stillbirth are inclined to encourage healing focusing on the loss of the fetus and open expression of the woman's feelings [9]. According to Callister [9], "interventions have been refined over the past two decades as research studies have been performed, in order to more fully promote health and healing in the face of perinatal loss. These include helping to create meaning through the sharing of the story of parental loss, the facilitation of socio-cultural rituals associated with loss, the provision of tangible mementos, sensitive presence, and the validation of the loss". In contrast, women seeking support for an abortion typically must identify sources of professional assistance on their own. In many cases, women may suppress thoughts and emotions related to an abortion, because they have not been able to process and/or openly express negative emotions, as Kluger-Bell [95] a psychotherapist states "When other people are reluctant to listen to us, when there are no ceremonies to publicly acknowledge the impact of our experiences, we receive the covert message that others would rather not hear what we have to say, and this makes it difficult to even identify our reactions to our losses".

Third, among women who experience a grief reaction following abortion, the process is likely to be significantly more complicated than with miscarriage since grief requires acknowledging a death and in order to accept that a fetus has died, the woman must admit that she played a role. Rather than doing so, women may suppress their feelings and avoid grieving or experiencing other strong abortion-related emotions. De Puy and Dovitch [96], who have worked extensively with women experiencing post-abortion psychological conflict, have noted that when emotions are denied or cut off, they may return in a disguised or exaggerated form. "Backlash" emotions are described by these authors as triggering secondary feelings likely to lead to unhealthy behaviors. In particular they note that addictions to alcohol, drugs, food, spending, work, and sex may plague women who have neglected to grow in the aftermath of challenging emotional experience. As noted by Deutsch [97], the first psychoanalyst to study women, when feelings of ambivalence and significant guilt related to a person lost are experienced, the normal course of mourning may be disturbed. If the reaction to a death follows this trajectory, the grief is intensified, assuming a brooding, compulsive, or melancholic character according to Deutsch. This author further contends that every unresolved grief ultimately finds expression in some form.

Fourth, the available research reviewed below indicates that mental health effects of induced abortion persist longer than the adverse effects of miscarriage. Less is known about the long-term effects of adoption; however women who adopt may be able to get their lives on track by embracing positive interpretations such as the idea of giving life and of choosing an option that was in their child's best interest. Birth mothers may logically view their decision not as abandonment, but as a self-less, responsible act. In this way, their maternal identity may more easily remain positive or if they experienced any compromised self-esteem due to their choice, focused assistance from a friend, partner, or trained counselor could fairly easily result in reframing of the experience in a positive, self-affirming light.

An early study by Peppers and Knapp [36] revealed similar grief responses among women, who experienced miscarriages, stillbirths, and neonatal deaths. Although very few studies have simultaneously examined the long-term effects of abortion, and miscarriage, there is some preliminary evidence that the pain of abortion is more difficult to resolve than the pain associated with involuntary forms of loss. For example, a Norwegian team comprised of researchers Broen, Moum, Bødtker, and Ekeberg [98] found that women who had an abortion two years earlier were more likely than those who had miscarried to be suppressing thoughts and feelings about the event. Specifically, nearly 17% of women who had an abortion scored high on a scale measuring avoidance symptoms compared to approximately 3% of those who miscarried. This was in contrast to responses 10 days after the pregnancy ended when nearly half of those who miscarried and 30% of those who had an abortion scored high on measures of avoidance or intrusion, which include symptoms such as flashbacks and bad dreams. Interestingly, Broen's team found that women with strong feelings of shame, grief or loss soon after the pregnancy

ended were more likely than others to have symptoms of avoidance or intrusion two years later.

In a second study published the following year, Broen and colleagues [99] reported that women who miscarried improved more rapidly than women who had aborted on measures of avoidance, grief, loss, guilt and anger throughout the 5 year observation period. Women who aborted scored significantly higher on avoidance, guilt, shame and relief than the miscarriage group at both the two and five year assessment points.

In a third recently published study by the Broen team [100] women who miscarried had significantly more anxiety and depression 10 days after the perinatal loss compared to women in the general population. On the other hand, women who aborted voluntarily compared to those who miscarried had significantly more anxiety at all time points (10 days, 6 months, 2 years, and 5 years) and more depression at 10 days and 6 months.

Coleman, Reardon, and Cougle [101] conducted substance use comparisons between women with histories of abortion, miscarriage, and stillbirth and women without the respective forms of loss. The sample consisted of mostly unmarried, low income black women. In all the analyses, there were controls for age, marital status, education, and number of people in the household. No differences were observed in the risk of using any of the substances measured during pregnancy relative to a prior history of miscarriage or stillbirth. However, a prior history of abortion was associated with a 201% higher risk of using marijuana, a 198% higher risk of using cocaine-crack, a 406% higher likelihood of using cocaine-other than crack, a 180% higher risk of using any illicit drugs, and a 100% higher likelihood of smoking cigarettes.

The picture that emerges for some women post-abortion is one of grief with no outlet and minimal comfort or support, self-recrimination, exacerbation or development of anxiety or depression, and/or substance abuse to numb the pain. Women frequently cope alone with what sometimes becomes extreme anguish and negative repercussions on parenting seem all too likely. In the final section of this report, evidence linking perinatal loss to compromised parenting is reviewed with a focus on induced abortion.

PREGNANCY AND PARENTING FOLLOWING PERINATAL LOSS

Bowlby [102] described the "urge to recover the lost object" as a fundamental component of grief which may foster the desire to quickly conceive again. Research suggests that grieving parents will sometimes have another child soon after their loss as a substitute for the child who died. Although the profound psychological impact that perinatal loss may have on women has been the focus of many scientific studies over the past few decades, relatively little published research is longitudinal in nature, addressing the effects of perinatal loss on subsequent pregnancies [103, 104].

The available data do suggest that after perinatal loss, initial feelings of happiness reported in association with a new pregnancy may be fleeting, and compared to women pregnant for the first time, those who have gone through a perinatal loss reported significantly more difficulty relaxing, greater anxiety, and less enjoyment [11, 12, 105-108]. Negative emotions may in turn delay attachment during the subsequent pregnancy [105, 108, 109]. Attachment difficulties are logical after the loss of a child, as O'Leary [110] concluded in a recent literature review: "You never stop being a parent to your children, even after they die. If parental feelings of grief for a deceased baby, occurring along side their struggle to attach to a new baby, are not acknowledged as normal, the parents and subsequent children are indeed at risk for mental heath disorders".

More than half of women who experience a perinatal death become pregnant again in less than two years [111]. Robertson and Kavanaugh [107] referred to a cluster of parenting implications stemming from mothers quickly becoming pregnant after a perinatal loss as the "replacement child syndrome". When there is a replacement child, parents often have unresolved grief issues and may have unrealistic expectations because they are hoping on some level for the living child to fulfill lost dreams associated with the deceased child. This could cause problems in the child with identity formation based on feelings of never being able to be one self or from experiencing the sense that one can not live up to parental expectations of an imagined child.

A syndrome related to the replacement child syndrome is termed the "vulnerable child syndrome" and it is characterized by parents being overprotective of the subsequent child [112]. Having lost one child there may be over-protective behavior arising out of fear of losing another child. In a study by Cote-Arsenault [113], mothers who had experienced a perinatal loss were in fact found to be more over-protective in their parenting with other children. In time this may lead to the child experiencing separation issues and difficulty with individualization. Over-protective parenting has been linked with interpersonal problems, anxiety, mood, and personality disorders in children [114-116].

When there is unresolved grief from a perinatal loss, disturbed mother-child attachment has been shown to persist at least one year after birth [117, 118]. Further, with difficulty attaching to a child due to depression, compromised self-esteem, unresolved grief, fears that a later born child will die, or a wide range of possible effects, parenting is likely to present many challenges outside the realm of what is typically experienced. One mother writes about her experience parenting an infant after a stillbirth for the January 2003 newsletter associated with the nonprofit organization Brief Encounters, a support group for parents whose babies died before, during, or after birth. (http://www.briefencounters.org)**:** "From the very beginning, I have had a strong sense of being different from "normal" moms. Until recently (my son is 14 months now), I avoided mom's groups and play dates because I am not very comfortable with other moms. I want to talk freely about both my children the way other parents do, but I can't. I often feel jealous of other parents because their families are whole and mine is not. I have many complex thoughts, emotions, and concerns about parenting, but because they are filtered through my loss, I don't feel like I have anything in common with other moms". She goes on to say: As Fisher grew, it got

easier and easier. Now I'm really comfortable in my mom role and I feel competent as a parent. Being his mom is the best thing in my life, but there are still times when I know I should feel happier than I do. Then I feel guilty that I am not enjoying him enough. I need to keep grieving for Esther, but I don't want that sadness to cloud my ability to relish the time I have with my son.

INDUCED ABORTION AS A RISK FACTOR FOR COMPROMISED PARENTING

In describing women's responses to abortion, therapists De Puy and Dovich [96] note "..it is normal for a woman to find herself wondering about the baby she did not have, even to the point of missing the child it would have become. She may feel sorrow over the loss of her "first born" if the pregnancy was her first conception…She may feel sorry if she already had children and now wonders what life would have been like with a larger family". Unless these feelings are satisfactorily resolved, they may interfere with a women's ability to be fully present with and responsive to her living children.

Moreover, as indicated earlier, the adverse mental health effects associated with abortion have been shown to be more serious and long lasting when compared to the effects of non-voluntary loss. Research suggests that maternal depression and anxiety before and after birth may compromise the quality of mother-child attachment [119-122] placing children at risk for problems across the emotional, cognitive, and behavioral domains [123-124]. Although there are numerous risk factors for child maltreatment identified in the literature, depression is a relatively common predictor of child abuse potential [125].

Induced abortion apparently increases the risk for sleep disturbances which could render the high energy demands of parenting more complicated. According to a study by Reardon and Coleman [126] in which the medical records of 50, 000 women were examined, those who had an induced abortion were significantly more likely to have subsequent sleep disorders compared to women who carried their pregnancies to term. In a second study many women attributed their sleeping difficulties (14% Russian, 23% American) and nightmares (8% Russian, 30% American) to a prior induced abortion [69].

One of the most robust findings in the literature pertaining to abortion and mental health is the link between abortion and substance abuse. Research unequivocally indicates that mothers who abuse substances are more likely to engage in authoritarian and punitive parenting practices, and the risk for experiencing neglect, physical abuse, and/or sexual abuse is increased significantly when parents abuse substances [127-131].

Associations between maternal history of abortion and problematic parenting, including lower emotional support and heightened risk for both child abuse and neglect have been reported in the literature [132-136]. One study explored maternal history of different forms of perinatal loss relative to risk of child physical abuse and neglect [134]. The sample was comprised of 118 abusive mothers, 119 neglecting mothers, and 281 mothers with no known history of child maltreatment. Compared to women without a history of perinatal loss, those with one loss (voluntary or involuntary) had a 99% higher risk for child physical abuse, and women with multiple losses were 189% more likely to physically abuse their children. Compared to women with no history of induced abortion those with one prior abortion had a 144% increased risk of becoming abusive.

In addition to the adverse parenting implications inherent in complicated grieving, potential for engagement in self-destructive behaviors, enhanced mental health risks, and sleep disturbances associated with abortion, parenting may be further compromised by a number of logical meditational processes. Several possible mechanisms that foster a feeling of detachment, detract from a woman's feelings of satisfaction in parenting, and/or render a woman less able to engage spontaneously in parenting may be operative in associations between abortion and compromised parenting. Among the possible mechanisms warranting further conceptualization and empirical research attention are the following: 1) due to shame, guilt, or violation of personal moral codes, women may feel undeserving of another child or they may have a sense that their child does not really belong to them; 2) women may "punish" themselves by not letting go and completely enjoying their children; 3) if women feel as though their abortions constituted a poor choice, they may lack confidence or a sense of personal efficacy in decision-making; 4) women may sense being judged by others and feel very self-conscious in parenting; 5) women may experience significant stress in parenting as they attempt to be perfect mothers to prove to themselves that they are good parents if the abortion hindered the development of or detracted from their maternal identity; 6) a biologically or psychologically based thwarting of the maternal instinct is possible since the decision to abort is diametrically opposed to the protection and nurturance which the female body and psyche are programmed to engage in when in a pregnant state.

In a few qualitative studies as well as testimonies women have provided in a number of less formalized contexts, themes such as those described above touching on the complexity of women's adjustment are described [96]. The following excerpt from a woman's testimony published on Helium (http://www.helium.com), an online informative forum, conveys the somewhat hidden, yet insidious impact abortion can have on women's relationships with their children: "I knew what my due date would have been, and every year I took note on that day of the things I should have experienced with my first child, but never did. I always imagined that my baby was a boy, and over the years I have watched him become a man in my heart. It has cast a shadow over each of my own birthdays for the last 27 years. In the joyous moments of the births of my other children I felt the absence of the first. The occasion of each first tooth, first step, first birthday, first day of school for my others contained for me a moment of guilt and pain. I sometimes wonder if I've had such a large family in an attempt to make up for that first loss. Until I gave birth to my oldest son, I felt like someone in limbo-not quite a mother, but almost".

Not every woman who has an abortion suffers psychologically and experiences related interpersonal challenges. However, the current state of knowledge on the topic suggests that some women will have carryover effects into the parenting realm, indicating abortion may not be the easy, fast remedy it is often purported to be. Breaking the self-destructive cycle many women commence when they consent to an abortion will require major societal shifts beginning with acknowledgement that many women view abortion as a death and experience it as a painful perinatal loss.

SUMMARY AND RECOMMENDATIONS

Millions of perinatal losses occur each year in the U.S. alone, easily impacting over half the female population across adolescence and adulthood [10, 11]. Based on the literature reviewed above, several key points clearly emerge and suggest vital areas of needed research attention in order to one day adequately address the psychological needs of women and families coping with loss. We know women form attachments to their fetus prior to birth and often within the first few months after pregnancy is detected; therefore, a significant grief response may logically occur with every form of perinatal loss.

Empirical evidence indicates that adverse psychological and behavioral effects are common in the aftermath of perinatal loss, varying in intensity and form based on individual and situational variables. Particular distress may ensue with concomitant self-blame, guilt, grief, anger, fears, and loss of confidence which have often been reported and seem to exacerbate anxiety and depression associated with the loss. Recent recognition of the various forms of perinatal loss as significant stressors should lead to more extensive investigations of the effects of such losses on other aspects of women's lives: their relationships with their children, their partners, and other family members and friends. More research is likewise needed to identify typical trajectories related to recovery from loss.

While there is now widespread recognition that involuntary perinatal loss may precipitate serious psychological distress, researchers are just in the preliminary stages of accepting the reality of women suffering from significant mental health problems as a result of losses they have freely chosen. Attention to the psychological wellbeing of birth mothers who relinquish their children for adoption has increased in recent years with research evidence having led to new forms of adoption designed to meet their needs. The results suggest more positive outcomes when the adoption experience is tailored to the birth mother's information and contact preferences.

Much more scholarly attention should be devoted to the experiences of women who choose to abort and suffer from serious conflict between societal messages that deny the personhood of the fetus and their feelings of attachment and grief to this "non-entity". Any self-doubt or compromised self-esteem initiated by the choice to abort may worsen when there is a sense that one is not adjusting like "most women". Professionals have not made research on women's views of the fetus and feelings of attachment prior to termination a priority in efforts to understand how abortion may impact mental health. Therefore it is difficult to know the actual percentage of women who are grieving the loss of a fetus through abortion. In the event that this becomes a well-developed research area, obstacles are inclined to surface in the realm of translating research to practice, as the results of methodologically sound studies documenting adverse psychological effects of abortion have not been assimilated adequately into professional training due to the socio-political climate surrounding induced abortion.

Simple and effective screening measures for psychological morbidity following miscarriage, induced abortion, and relinquishment of a child for adoption remain to be developed despite evidence that all three forms constitute serious losses and increase risk for mental health problems while also possibly introducing parenting challenges. Treatment protocols need to be developed and randomized controlled intervention efficacy studies should become a research priority in an effort to maximize women's health.

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