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Psychology of Reproduction: Pregnancy, Parenthood, and Parental Ties

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INTRODUCTION

Over the last generation, profound changes have occurred in the relationship between sexuality and reproduction, the assumption that pregnancy leads to parenthood, and the equation of parenthood with loving parental ties. With the increased availability of safe, effective contraception, sexual relations are less likely to lead to unwanted pregnancies. When such pregnancies do occur, the accessibility of legal abortion enables parenthood to be more of a choice than an inevitability. If a much-wanted pregnancy ends in perinatal loss, there is the recognition that a real baby has died, allowing the couple to identify themselves as bereaved parents. The dramatic advances over the past 30 years in assisted reproductive technologies (ART), especially *in vitro* fertilization (IVF) and intracytoplasmic sperm injection (ICSI) have also served to detach sexuality from reproduction and to devise multiple gestational pathways to parenthood. The explosion in infant abuse and neglect cases during this time period undercuts the belief that becoming a parent ensures nurturant parenting. Finally, the reduced stigmatization and greater incidence of women giving birth out of wedlock, as well as the great increase in the percentage of women joining the workforce soon after birth, has dramatically altered women's options for parenting and work. In short, although the usual sequence of reproduction (*i.e.* sexual relations→pregnancy→parenthood→nurturant parental ties) that is embedded in the traditional biologic nuclear family may still be a path many follow, it may no longer predominate,[1] even as some question how universal that traditional family ever was.[2]

Although these important biosocial changes are not the primary focus of this chapter, they provide the backdrop to consideration of these components of reproduction as more discrete and less integrated than they may have been regarded in the past. In this chapter, the psychology of reproduction is examined through the lens of these constituents in order to understand how they interact and conflict. Owing to the voluminous literatures in many of these areas, summaries with additional references for further study are used. In discussing the psychobiologic experience of pregnancy, the family and cultural dynamics that operate in becoming parents, and the development of parental ties, the contributions of psychic, interpersonal, societal, and biologic perspectives are considered and evaluated. The chapter concludes with a discussion of the repercussions of ART on the nature of parenthood for participating couples and the impact of ART on the definition of parenthood for society at large.

Brief clinical vignettes are used to illustrate these issues. Although these cases are drawn from a psychotherapeutic population, the clients are all high-functioning, intended to represent persons with normative reproductive conflicts and struggles and not patients with major psychologic disturbance. Because in this line of work the empathic, consistent understanding of a concerned listener (*i.e.* 'social support') is an indispensable therapeutic tool, some of what goes by the name of psychotherapy may be transferable to good obstetric practice by any medical caregiver. The utility of conveying particular insights will probably depend on how much the caregiver is emotionally in tune with the patient.

THE PSYCHOPHYSIOLOGY OF PREGNANCY

Psychoanalytic Perspectives

Early Drive Model

Freudian drive theory focused on the psychic expression of instinctual drives (*i.e.* sexuality and aggression); its later revision, ego psychology, emphasized how those instincts are adaptively managed by our coping resources, the ego and its defenses.[3, 4] Although Freud eventually constructed a complex psychology of human functioning, it should not be forgotten that his roots, aspirations, and beliefs were steeped in a psychophysiologic model, making him, in Sulloway's terms, a "biologist of the mind".[5] As an instinctual process, pregnancy was understood as recapitulating infantile sexuality.[6, 7, 8, 9, 10] In the first trimester, with the attachment of the fetus inside the uterus, orality predominates, coinciding with symptoms of nausea and food cravings. In the next trimester, the fetus is accorded greater personhood during quickening as anal trends become more prominent, corresponding to the toddler period of increased separation from parents. Finally, during the third trimester, as the mother prepares for delivery, phallic-aggressive wishes, associated with urethral issues, gain ascendance, linked with heightened fears that she or the baby may die, along with the dread of losing control.

As well as this libidinal regression, earlier modes of cognition typically occur during pregnancy. Ego regression with a distorted perception of reality, magical thinking associated with primary process (*e.g.* irrational beliefs and fears), and greater emotional volatility are all a normal part of pregnancy.[10, 11] This often leads to high anxiety,[9, 12] with obsessional, compulsive, and phobic preoccupations[13] that give the appearance of emotional disturbance on psychologic measures.[14] With the lessening of defenses, pregnancy can be seen as an optimal time for psychoanalytic interventions.[15]

In addition to the revival of infantile sexuality, a critical ingredient of the drive model of pregnancy includes Freud's view of femininity. In essence, Freud believed that girls see themselves as castrated boys and turn sexually to their fathers in the Oedipal Complex in order to have a baby from the father as compensation for feeling defective in not having a penis.[16] It is now recognized that, instead, girls typically develop a positive sense of their femaleness in establishing a core gender identity by the age of 2–3 years,[17, 18] and most of Freud's concepts of femininity have been significantly revised.[19, 20] One particularly valuable formulation of gender development, by Fast,[21] describes how early on both boys and girls experience a sense of "unlimited possibility", in which the capabilities of both sexes are open to them. For girls this means that the wish to possess a penis is not, as Freud would have it, to become a boy, but instead to have masculine abilities without relinquishing the pleasures of being a girl. Child observations of penis envy in toddlers[22] as well as empiric investigations demonstrating through subliminal stimulation an equation among females of penis with baby[23, 24] may be interpreted as expressions of those earlier wishes to have both sexual capacities.

Relational Models

Both early[6, 7, 8] and more recent[10, 15, 25, 26] psychoanalytic theorists have emphasized that a crucial determinant of the course and outcome of pregnancy is the woman's identification with her own mother. In these terms, pregnancy is less about heterosexual (*i.e.* Oedipal) conflicts related to father or to any sense of primary bodily deficiency in comparison with men, but more about coming to terms with her relationship with mother. Indeed, historical analysis based on anthropologic data indicates that not only are female assistants an integral presence during childbirth, but until the involvement of male physicians in the 17th century men were virtually absent from the childbirth experience.[27]

The pregnant woman's growing sense of maternity is intimately linked with her own history of being mothered through infancy and childhood. In order to prepare to effectively mother her dependent infant through understanding what that baby will experience, she must resonate with that state of infantile helplessness. According to Brazelton and Cramer, “She will simultaneously identify with her own mother *and* with her fetus, and thus will play out and work through the roles and attributes of both mother and baby, on the basis of past experiences with *her* mother and *herself* as a baby” (p. 15).[28] This helps to explain why more primitive cognitive and emotional reactions (*i.e.* ego regression) during pregnancy and the puerperium form an adaptive preparation for empathizing with and parenting a baby. In Winnicott's[29] terms, the “primary maternal preoccupation” during the perinatal period may appear pathologic (as already discussed) but “Only if a mother is sensitized in the way I am describing can she feel herself into her infant's place, and so meet the infant's needs” (p. 304).

Women who are threatened by this heightened dependency revived in pregnancy may automatically pull back and away from any needy feelings, sometimes to the extent of disavowing their child's helplessness.[25] Their own unresolved childhood disappointments and deprivations may inspire intense anger, sometimes heatedly directed at maternal figures experienced as dangerous, who unconsciously remind them of their own earlier felt helplessness.[25, 26] A mother's pain engendered by her helpless, crying baby is captured by Benedek's[7] understanding that this simultaneously evokes not only her sense of being the “bad mother” who cannot effectively care for her child (corresponding to images of her own disappointing mother) but the “bad infant” as well (linked with her earlier images of an angry, bitter, unhappy self).

The psychic experience of pregnancy is not a closed system invariably repeating the past. Indeed, a crucial feature of the psychologic work of pregnancy is achieving what Ballou[25] describes as a reconciliation with the loving feelings toward one's mother and inevitable past disappointments (*i.e.* ambivalence). Amid bursts of anger and exaggerated slights, a healing process occurs. Things usually simmer down as pregnancy proceeds. Importantly, the vulnerability created by intense, revived dependency and the resolution of this reconciliative process can be constructively facilitated by nurturant supportive figures such as a spouse, medical caregiver, sibling, friend, or in-law, especially if the pregnant woman feels a need to keep distance from her own mother.[6, 9, 25] A brief vignette may help to illustrate some of these dynamics.

After visiting her parents during the beginning of the second trimester of her first pregnancy, a woman in her mid-thirties heatedly complained about how her mother was “driving her crazy”. She mockingly described how feeble and helpless the mother presented herself, complaining about her osteoporosis and relying on her father for the most basic things, such as reaching for the toilet paper. Trying to minimize her real hurt and sadness, she described how her mother discouraged a baby shower for her because of the work it would entail. The therapist noted how hard it must be not to have her mother be more there for her as, understandably, she would wish. She quickly turned to how controlling mother could be, monitoring her activities—which friends she sees and when she should come home—as if she were still a kid. The therapist observed how much her mother seemed to shift back and forth from appearing like a child needing to be taken care of to becoming an overbearing mother treating her as if she were a child—whereas what she most wanted from her mother was to be regarded as an equal, soon to become a mother herself. She strongly agreed, and the therapist supported the importance of celebrating her expectant motherhood with a baby shower among the good friends she had. By the next session, the woman appeared much calmer and happier, making no mention of her mother and expressing mild irritation at a self-centered friend.

Without questioning the accuracy of her perceptions of her mother, who did appear to be both needy and controlling, the intensity of this client's reactions suggests how much mother evokes the normal conflicts over dependency that are revived in becoming a mother. As soon as her disappointment over her mother's inability to compassionately care was pointed out, she bristled at her mother's ministering to her as if she were a child, rejecting in part those needs within her to be nurtured. Rather than interpret her own internal conflict over dependency, the therapist empathized with her conflicting images of mother, mirroring her own very mixed wishes to depend on mother and to aggressively stand on her own with help from no one. She was able to accept her therapist's support for her legitimate need to be nurtured as well as her capacity to become a mother herself, without those needs having to be as conflictual.

Another relational perspective involves formulating a new relationship not with the earliest other—typically mother—but with oneself. Expectant mothers invest a considerable portion of their self-esteem in the child-to-be. Deutsch[6] observed that for women, “Pregnancy is a welcome opportunity to enhance their own importance ... Often it [the fetus] appears as an ideal child, usually representing the dreamer herself, endowed with her own best qualities and all those she would like to have” (pp. 156, 162). Pregnancy fulfills other normal narcissistic ambitions by fostering a sense of omnipotence through the act of human creation; by the experience of becoming a mother, who is imbued with such power in the life and mind of a young dependent child; and by the denial of death via a sense of immortality as one's material being is projected into the next generation. Finally, one's femininity is affirmed through the act of reproduction.[30]

The self-enhancing aspects of pregnancy are perhaps most clearly seen when they are unexpectedly violated. When a child is born with a serious birth defect, there is a clear process of grieving for the wished-for, 'ideal' healthy child, accompanied by terrible feelings of failure and inadequacy.[31, 32] Perinatal loss similarly evokes a painful grief for the child who has died, as well as an often traumatizing assault on the self and its feelings of omnipotence during the act of creation.[33, 34] Finally, infertility typically erodes self-worth,[35, 36] profoundly damaging one's gender identity. This is exacerbated by the stigma that is attached to reproductive failure by all cultures to different degrees, and particularly by traditional societies that identify a woman's primary goal as procreation.[36, 37, 38, 39]

This does not mean that the decision not to become a mother necessarily denies a woman a primary source of feminine fulfillment, leading to diminished self-esteem, or that such a choice must indicate unresolved (*i.e.* neurotic) conflicts. Although women who choose to be child-free may experience pangs of disappointment and loss over never becoming parents, research[40] and clinical[41] studies describe how it is possible to construct a positive feminine identity that does not include motherhood.

Relational models of psychoanalysis interweave the threads of pregnancy—involving a connection with a separate person—with extending and enhancing the best parts of oneself. Over the course of pregnancy, there is a gradual shift from the sense of the fetus as a part of not only one's body, but one's psyche and self, to viewing the unborn child as a separate individual awaiting birth. Nonetheless, both elements

continue after delivery. The narcissistic experience of the baby explains the pride felt with each and every developmental achievement and accounts for the devotion to that child as if one's very life depended on it. The recognition of one's child as having a separate identity enables a respect for the child's individuality and the need to support that child in becoming his or her own self apart from whatever wishes a parent may have in mind. Either strand alone presents a distorted image of parenting. Exclusively narcissistic motives for parenting may lead one to treasure one's child, but only in terms of expanding (or compensating for deficiencies in) one's sense of self. Relating to one's child as completely a separate person may make one an excellent caregiver, such as a devoted childcare provider, but nonetheless falls short of the needed personal investment in being a parent.

Finally, psychoanalytic pioneers from varying perspectives indicate that although having a biologic connection with one's child may facilitate that narcissistic investment, 'blood ties' and procreation are neither necessary nor sufficient to develop that personal tie.[29, 42] In Deutsch's[6] words, “My idea of motherliness as an emotional complex is psychologic, and in my view *a woman can fully possess and enjoy motherliness even if she has not conceived, borne, and given birth to a child*” (p. 166). Although rooted in biology, the psychoanalysis of pregnancy has come full circle in emphasizing that the crucial dynamic in the preparation for parenthood is psychic and interpersonal. The ties created with one's child-to-be are forged in the crucible of one's own experiences of being parented and the development of one's own sense of self. Interestingly, Sarah Hrdy, an important contemporary evolutionary anthropologist, offers a strikingly similar view of the contingent, non-universal experience of maternal love based not on individual psychodynamic history but evolutionary adaptedness: "By itself, giving birth does not guarantee that a mother can learn to love any baby she bears. A woman predisposed to be a mother can learn to love any baby, while a mother not so disposed does not even learn to love her own. This is what it means to live with the emotional legacy of a human who evolved in a hominid context where mothers relied on assistance from others to help rear offspring"(p. 116).[43]

Neuroendocrine Contributions

Mammalian studies clearly indicate the important contribution of estrogen and progesterone, typically mediated by prolactin, in the initial expression of maternal behavior in rats, which have been the animal most commonly studied because of their rich yet distinct maternal behavior. In replicated studies, female rats giving birth for the first time spontaneously demonstrate maternal behaviors—retrieving, grouping, licking, crouching, nursing, and nest building—whereas males and virgin females engage in those maternal actions only under constant exposure to pups for 5–7 days.[44, 45, 46] Other reported triggers to the initiation of maternal behavior include vaginal-cervical stimulation in sheep[47, 48] and the presence of amniotic fluid on canine pups.[49] Recent studies of humans using neuroimaging techniques are beginning to construct the neurobiology of maternal behavior during pregnancy and post-partum[50] focusing on the importance of neuropeptides oxytocin and vasopressin[51] and the hypothalmic-midbrain-limbic-paralimbic-cortical circuits of the brain[52] in the early activation of maternal behavior. However, being able to trace the neurobiology of expectant motherhood should not be misinterpreted as signifying that neuroendocrine factors themselves exert a primal causal role.

Much less striking than the biologic activation of parental behavior in mammals, however, is the redundancy of alternative, behavioral pathways built into the caregiving system. Most animal researchers[46, 53] emphasize that, although a biologic model including hormonal and nonhormonal agents is responsible for the initial stimulation of maternal behavior, behavioral interaction with the young is necessary to maintain caregiving, as “relatively flexible behavioral mechanisms soon replace more rigid biological mechanisms” (pp. 149–150).[53] Indeed, as summarized by Kelley,[44] “sex differences in parental responsiveness to pups consist primarily of the latency with which behaviors are exhibited on initial exposure: seconds or minutes for parturient females, days for males or nulliparous females ... Both sexes can and do display full maternal responsiveness following prolonged exposure to pups, thus suggesting that all the requisite sensory, neural, and motor systems are present ... Compared with the major sex differences in behavior associated with courtship systems, sex differences in ability to display parental care are quite minor” (pp. 234–235).

With the greater behavioral flexibility expected in humans and their less reliance on fixed instinctive reactions compared with other animals, an even smaller role for the biologic determination of postpartum parental behavior should be expected. No clear association between any hormonal levels and maternal responsiveness has been reported in humans.[54, 55] Furthermore, human fathers have been found to display an intense loving attraction to their children soon after birth, aptly termed “engrossment,”[56] and to demonstrate, both in laboratory responsiveness to infant cries and smiles[57] and in nurturant relationships with their children,[58, 59] little difference from mothers in parental capacities. Similarly, among young adults, experience and not gender has been found to be the primary determinant of interest in babies.[60] This does not mean that other biologic mechanisms not evident during the time of pregnancy and soon after delivery may not be important determinants of parental behavior (see Parenthood and New Reproductive

Technologies, below), but only that there is no convincing evidence to suggest that the physical experience of pregnancy plays a crucial role in human parental responsiveness beyond the early postpartum period with initial biologic maternal activation.

BECOMING PARENTS

The Developmental Phase of Parenthood

Many psychoanalytic theorists understand pregnancy not solely in terms of drive, ego, and relational regressions, but progressively as the process of psychosocial maturation in traversing a new developmental phase, parenthood. These perspectives are complementary rather than competing. As with the earlier developmental phase of adolescence,[61] the presence of psychologic upheaval and distress typically signifies a regression that is less often an indication of psychopathology than a prelude to developmental growth. Bibring and her colleagues[9] identified pregnancy as a crisis which, while reviving earlier wishes, identifications, and unresolved conflicts, provides the opportunity for more or less adaptive solutions in a new, changed organization of one's personality. Benedek[62] initially identified parenthood as an ongoing developmental phase which, via the intimate reciprocal psychic interaction of parent and child, facilitates the activation or resolution of conflicts for both parent and child. In effect, in the process of parenting one's child, a mother and father relive and may revise their own earlier adaptations, in synchrony with their child's development. Later psychoanalytic writings on the developmental phase of parenthood have debated biologic contributions,[63] the selective role parents may play in their child's development,[64] and the importance of this phase in the overall process of adult development in general[65] and, more specifically, in the greater integration of one's identity, separate from one's mother.[6, 10, 25]

In his classic study describing the eight stages of human development, Erikson[66] emphasized the crucial role of generativity, typically—although not exclusively nor even necessarily—realized in parenthood. Echoing Benedek,[62] he highlighted the reciprocal influences between parent and child, foreshadowing later studies demonstrating how much infants influence, as opposed to being only affected by, their parents.[67] “The fashionable insistence on dramatizing the dependence of children on adults often blinds us to the dependence of the older generation on the younger one. Mature man needs to be needed, and maturity needs guidance as well as encouragement from what has been produced and must be taken care of ... Generativity thus is an essential stage on the psychosexual as well as on the psychosocial schedule” (p. 266–267).[66]

The Transition to Parenthood

Challenging the psychoanalytic view that parenthood signifies a crisis involving regression, family researchers apply a transactional model which views pregnancy and the postpartum period as a transition to parenthood[68] that alters the balance of marital and gender roles previously established, leading to new interactional patterns and conflicts. The focus here is not on intrapsychic adjustment but on the accommodation of new role demands with previously set modes of satisfaction, communication, and intimacy. Curiously, there is relatively little discussion about pregnancy in the family therapy literature, despite the importance placed on marital communication, family constellations, and overt patterns of interaction in this clinical tradition. The two most important studies—those of Cowan and Cowan, followed by the research of Belsky and his colleagues—are highlighted here.

Cowan and Cowan's 10-year longitudinal study recruited 96 couples in the San Francisco Bay area; of these, 72 expectant couples were observed from their pregnancies in 1979–1980 through their child's kindergarten year, using both interviews and psychometric measures.[69, 70] The most striking finding was that in most of the areas of functioning examined (*i.e.* psychologic sense of self, couples' role arrangement and communication, agreement on parenting ideology, and social support/life stress), the arrival of a first child led to more significant negative changes over time compared with those observed in nonparent spouses. New mothers and fathers emerged increasingly different from each other in most of these domains. As found in many other studies of the transition to parenthood,[68, 71, 72] there was a notable reduction in marital satisfaction for both men and women during the two years after childbirth. Although new mothers expressed their greatest decline in marital satisfaction during the first six months postpartum,[72] new fathers reported their greatest drop during the next 18 months.[73] An especially powerful risk factor exacerbating the transition to parenthood is the degree of ambivalence of the couple, either individually or together, about becoming parents. When both partners expressed mixed feelings about prospective parenthood during pregnancy, their marital satisfaction was dramatically lower than for those ambivalent couples who did not become parents. Even more striking was the plunge in postpartum marital satisfaction and eventual divorce experienced by every one of the seven couples in which one partner (usually the woman) wanted a baby and the other did not.[70] Although parenthood appears to deter or

delay marital break-up—only 20% of this study's couples divorced during the six years after the study began, in contrast with the national average and the rate of divorce in the childless control group of 50%—clearly the decision to parent must be consensual to have this effect.

Multiple findings converge on the positive effects of a wanted pregnancy on marital, individual, and children's well-being, and the dangers of having an unwanted child. Higher risk factors were associated with unplanned pregnancies, including demographic variables (*e.g.* younger age, poorer financial status, less stable relationships), psychological vulnerability (such as higher neuroticism and depression) and greater interpersonal challenges (*e.g.* less secure attachments).[74, 75] Not only did the 'pregnancy planner' group report the mildest drop and highest overall level in postpartum marital satisfaction in this[70] and other studies[76, 77] but unplanned pregnancy was associated with greater strain on fathers[78] and developmental lag for children.[79] Another prospective, longitudinal study of 238 women observed from the last month of pregnancy until the child was 2 years old similarly found that prospective mothers who reported feelings similar to those of their partners about their pregnancies were more likely to develop an earlier and stronger attachment to their child, to be happier, and to report a good relationship with their child.[80] When the couple had to go to unusually great efforts to become parents, such as through adoption[81, 82] or donor insemination,[83] their divorce rate was significantly less than the national average. Highly motivated prospective parents who had their positive expectations met by experience reported significantly less decline in marital satisfaction over the transition to parenthood.[84] However, when very high or romanticized parental expectations were not fulfilled, a significant decline in marital satisfaction followed.[77, 85] At the other end of the spectrum, those children who appeared to be the most unwanted during pregnancy—whose mothers wanted but were denied an abortion[86, 87] or had considered but decided against an adoption plan[88]—demonstrated significantly higher levels of psychiatric and behavioral disturbance in childhood and as adults. Although most unplanned pregnancies lead to wanted babies,[78] the long-range and often dire repercussions of an unwanted pregnancy on individual, marital, and eventually child functioning should be kept in mind by obstetricians who are asked to provide information and guidance on pregnancy and parenting decisions.

A crucial source of marital tension and friction after delivery is the increased gender differentiation along traditional cultural roles, with the new mother more responsible for child care and the new father more oriented to work outside the home. However, it was not this difference *per se* that caused marital strife as much as the mothers' disappointed expectations that their partners would be much more involved in child care and ensuing conflicts over these differing roles and expectations.[70, 89, 90, 91, 92] Although Cowan and Cowan[73] reported that “couples who were able to move in the direction of shared parenting were more likely to be satisfied with themselves and their marriage,” they also stated, “Neither traditional nor egalitarian arrangements guarantee nirvana. Our observations lead us to the belief that the processes by which partners work out their division of family labor are even more critical to satisfaction with family life than are the actual arrangements” (p. 170).

Belsky and his colleagues[92] studied about 250 couples beginning in 1982–1984, monitoring most of them throughout pregnancy and until the child's third birthday, using both interviews and objective measures as part of the Penn State Child and Family Development Project. Despite the very different demographics of this rural, working class, central Pennsylvanian sample, compared with Cowan and Cowan's urban, middle class, northern Californian cohort, the major outcomes were strikingly consistent, underscoring the reliability of these findings. Again, marital satisfaction dropped first, and most precipitously, for the new mother, with the central issue becoming the conflicting expectations between partners over gender roles as the lion's share of child care and household responsibilities fell on disillusioned wives. However, whereas the Cowans[70] reported virtually universal decline in marital satisfaction among new parents, only one half of Belsky's sample expressed lower marital satisfaction, with 30% unchanged and 20% citing marital improvement. In summarizing these results, the authors pinpointed six tasks couples need to master to successfully negotiate the transition to parenthood:[92] subordinating individual goals and needs to teamwork; reconciling differences about household labor and tasks in a mutually acceptable fashion; sharing stresses so that neither partner is overburdened; resolving conflicts openly but constructively; recognizing the permanence of change in the marital relationship brought about by becoming parents; and sustaining marital communication that supports the relationship. Reported levels of marital satisfaction were directly related to how well these tasks were managed. Those couples who were able to effectively handle at least four tasks reported improved marital relationships; couples who scored high on some tasks but lower on others generally reported no change; and those couples who had difficulty managing four or more tasks expressed the greatest decline in marital satisfaction.

Perhaps a crucial indicator of the capacity of partners to successfully manage these tasks is the capacity to empathize with one another. Not only is this based on an affective ingredient of fondness with a high awareness of the other[93] but the ability to meaningfully understand and articulate parental and marital interactions. Partners who were more able to meaningfully and coherently represent their own childhood experiences[94, 95] as well as their parents' marital interactions[96, 97] were in a better position to offer and

perceive partner support with typically less decline in marital satisfaction over the transition to parenthood. A planned pregnancy with increased opportunity to prepare and be motivated for the coming challenges of parenthood, as well as the ability to be attuned to one's partner's needs and experience based on having developed that introspective capacity with oneself, may offer important buffers to the usual decline in marital satisfaction during early parenting.

Both major studies demonstrate how the marital adjustment to parenthood has significant, long-term effects on parental competence and subsequent child development. Higher marital and family functioning from pregnancy through the preschool years was significantly associated with how well the child was doing both socially and academically during elementary school.[70] Although paternal parenting of daughters appeared to be related to the father's marital relationship, his relationship with his young son seemed to be more strongly based on his feelings about himself and his own life.[70] Belsky and Kelly[92] reported that marital difficulties often infiltrated the early parent-child relationship, describing how a father who feels disregarded by his wife may be more inclined to exert power over his relatively helpless young child; a mother may oversolicitously turn to her child to compensate for the lack of closeness in a distant marriage.

Prenatal parental classes need not only to discuss the physical aspects of labor and delivery as is commonly done, but to address the crucial emotional and marital stressors of new parenthood they are about to encounter[85] in order to more realistically anticipate and prepare for these dramatic upcoming changes, including inevitable exhaustion.[98] Parents who participated in a 24-week parental preparation intervention extending from the last three prepartum months through the first three months postpartum demonstrated significantly less decline in marital satisfaction enduring more than five years compared to couples not offered such groups.[99] The groups appeared to be effective not by improving relationship skills via a psycho-educational approach, but instead by providing a safe, normalizing setting in which they could hear and discuss "the nitty-gritty details of parenthood and the emotional ups and downs in their intimate relationships as couples ... Being able to recognize that their experiences were not unusual seemed to reduce the tendency for new parents to blame themselves or their partners for the stresses they were experiencing" (p. 29).[99] By facilitating more realistic expectations of parenthood and promoting increased empathy among partners, these group interventions appear to capitalize on the buffering factors already discussed which mitigate the usual erosion in marital satisfaction in early parenthood. A couples' group before kindergarten, which focused on improving parenting skills and cooperation, appeared to be more effective in enhancing marital satisfaction and improving the child's academic and emotional adaptation to school than a couples' group that was more oriented to airing and resolving marital differences.[100] As crucial as the marital relationship is in setting the tone for family life and the development of its children, for some battling couples, trying to reconcile their disagreements may be less effective than finding the areas of congruence in parenting their children together.

Expectant Fatherhood

Over the past 25 years there has been a wealth of research exploring prospective fatherhood, occurring at a time of major social upheaval. As women are returning to the workplace in greater numbers soon after their children are born, fathers are often being asked to assume a greater role in parenting, which, as just reported, often leads to thwarted expectations and increased conflict in marriages. The psychologic dimensions of the entrance into fatherhood are discussed here, with cultural aspects considered later in the section on historical contributions.

Although it is not experienced biologically, pregnancy may evoke for men a revival of conflicts and emotional turmoil similar to that described among women,[6] which frequently lead to impediments to fathering[101] but also allow opportunities for new growth and maturation.[91] Psychoanalytic investigations, including a very detailed case report of an expectant father in psychoanalysis,[102] highlight how a man's capacity to nurture and his generative aspirations have strong roots in his love for his mother and wishes to be like her,[103] while at the same time he needs a strong connection with his father to support a viable masculine identification.[104] In her revision of Freudian gender theory, Fast[21] argues that a young boy's desire for feminine capabilities such as babymaking and growing breasts are not rooted in a biologically based bisexuality but an early undifferentiated phase for both boys and girls, during which time all abilities—both masculine and feminine—are wanted and felt to be within reach. The young boy's loss as he relinquishes those feminine capabilities is softened by sustaining precious memories and identifications with his mother, integrated into his positive sense of himself as a man. A man who is insecure in his masculinity may need to forcefully disavow and repel anything feminine, lest it intolerably remind him of his envy for what he cannot have or do. Feeling inadequate as a man and cut off from his feminine associations with his mother, he has no gendered place to turn to feel good about himself.

Fast's model of gender differentiation may provide a useful organizing theory to help explain men's common reactions to their mates' pregnancies and their own anticipation of fatherhood. Although

couvade—the simulation by men of physical symptoms of their wives' pregnancy, such as nausea or weight gain—is sometimes associated with psychiatric disturbance,[105] it is not only widespread in many traditional cultures[55] but frequently occurs in our society as well. Studies indicate that a majority of expectant fathers[106] as high as 95%[107] express pregnancy-like physical symptoms during their wives' pregnancies. Couvade symptoms may represent a man's basic normal wishes to bear a child, which, while denied him biologically, is very close to his psyche because of his partner's pregnancy. In fact, greater emotional involvement in his wife's pregnancy was significantly associated with the number, duration, and perceived seriousness of couvade symtpoms.[107]

Potentially more problematic in a man's entrance into fatherhood is not the unconscious expression of 'womb envy' in couvade symptoms, but his expressed need to turn away from becoming emotionally involved with his unborn and infant child, lest he feel emasculated by engaging in 'women's work'. Although the research on pregnancy loss suggests a more intense and enduring grief for bereaved mothers than for fathers, owing to the physical and emotional nearness of the presence of the fetus for the woman,[34, 108] empiric studies also demonstrate much more similarity than difference in the ways in which expectant fathers and pregnant women attach to their unborn children.[109, 110] Men, however, tend to be much less ready to express these feelings; as Condon[110] suggested, “cultural stereotypes may operate to conceal the true similarities between men's and women's inner experiences during pregnancy” (p. 281). Gerson[111] observed that the images of paternity voiced by expectant fathers tend to have a stiffer, more frozen quality than the highly interactive and reciprocal versions expressed by their pregnant wives, although “our data indicate that young men can be most readily invited into the symbiotic, early phases of parenthood through an identification with their pregnant spouses” (p. 141).

Greater paternal involvement with the baby has been associated with both increased well-being among new fathers and greater marital satisfaction.[70, 73, 112] Clinically depressed new fathers, almost 30% of one sample, are likely to feel marginalized in their homes, feeling that they have less of a role in decision making than their wives and being unhappy about how decisions are made.[91] Fathers who are able to draw on both masculine and feminine capacities in their personality (*i.e.* those categorized as androgynous on sex-role scales) have been found to be the most involved in their infants' care,[113, 114, 115] although one review of paternal involvement indicates that this is not consistently reported.[116] Feminist theorists such as Chodorow[117] and Gilligan[118] have highlighted that men and women develop essentially different 'cultures', with males more oriented to establishing separateness and females directed toward maintaining their connections with others, leaving distinct gendered imprints on, respectively, their patterns of interactions and their sense of morality. The optimal adaptation is not determining the superiority of one or the other, but finding a means of integrating both perspectives. In her small sample at Boston University, Grossman[119] highlighted the adaptive value of being able to flexibly negotiate togetherness and separateness, concluding that “men's autonomy and affiliation during pregnancy indeed had an impact not only on their own development but on the marriage and on the children as old as age 5” (p. 110). Children whose fathers interact more tend to be cognitively advanced, more empathic, less sex-stereotyped in their beliefs, and more self-directed than children with less involved dads.[58, 116, 120, 121]

Lamb's review of the impact of fathers on early child development[121] indicated that “the differences between mothers and fathers appear much less important than the similarities ... Parental warmth, nurturance, and closeness are associated with positive child outcomes whether the parent or adult involved is a mother or a father” (p. 13). More important than the characteristics of individual fathers or the sheer amount of time spent in interaction with their children, Lamb suggests, is the quality of that relationship and time spent with their children—how sensitive, supportive, and reciprocal those ties are. Finally, those individual ties exert their impact in wider social contexts, both familial and cultural. Familial hostility and marital conflict are powerfully associated with child disturbance, and there is wide variability in paternal roles across different cultures and historical periods, with no one optimal model suitable for all fathers everywhere.[121]

Blankenhorn[122] and Popenoe[123] decried the disastrous social consequences of absentee fathers—youth violence, child sexual abuse, domestic violence against women, poverty, teenage pregnancy, and so forth—when more than half of the nation's children live away from their fathers for a large part of their childhood. Both of these social theorists objected to the new, more androgynous model of paternity, forcefully arguing for the traditional 'family man' whose role of providing for and protecting the family should take precedence over that of nurturer, ascribed to the mother. Although it is clear that the 'distant dad' who is too absorbed in his work and himself rarely facilitates optimal individual, family, marital, and child development, differentiated parental functioning along traditional sex roles may work quite well for all when there is marital consensus and fulfillment in that arrangement. Although an emphasis in this discussion of expectant fatherhood has been on understanding the crucial role of maternal and feminine influences, the capacity to flexibly and comfortably draw on those resources is predicated on a secure sense of masculinity, which appears to be most closely associated with a close relationship with one's father.[121]

Fathers consistently interact much less with their infant children than do mothers—about 20–25% as much as stay-at-home mothers and about one third as much as working mothers, with the latter increase not resulting from fathers interacting more but from mothers interacting less.[121] Although studies repeatedly highlight the importance of fathers' active, physical play contrasted with mothers' nurturance and caregiving, mothers in fact play more with their infants than do fathers; fathers' propensity for highly interactive play may make that experience more central for their infants.[121] The message here for obstetricians seems clear. High paternal involvement with their infants benefits fathers, their marriages, and their children. The beginnings of that attachment optimally occur during pregnancy, a window of opportunity in which to encourage men's active participation in their wives' pregnancy. The squeamishness that some men may experience regarding attendance at the actual delivery does not have to impede their preparation for fatherhood and interaction with the infant after birth.

Becoming Parents: Crisis or Transition?

The psychoanalytic and marital/family visions of entering parenthood appear to be not so much conflicting understandings as views of the same phenomena from different viewpoints—the psychoanalytic perspective exploring the internal, psychic change and the family orientation examining its interpersonal ramifications. By integrating both frameworks, we may be able to distill the essential findings.

The common decrease in marital satisfaction on becoming parents may not necessarily be a problem or symptom of disorder but a potential marker of the major intrapsychic and interpersonal changes occurring at this time. Whereas psychoanalytic 'crisis' theory highlights the regressions in instinctual, cognitive, and relational modes of functioning as a necessary prelude to significant internal change, family theorists underscore how much marital tensions define the new roles and internal needs that must be reconciled in new familial arrangements. In their quantitative study, Heinicke and Guthrie[124] report that it is not unusual for couples to go through a period of increased disharmony and stress as they are “able to confront marital issues, express critical negative feelings, and also resolve issues while maintaining a context of positive mutuality ... the birth of a child results in a period of variability in adaptation followed by increasing stability in the nature of those family adaptations by the time the child is 2 years of age” (p. 126). Similarly, many men who were disengaged from their babies and experienced depressive moods at three months after delivery reported significantly higher levels of interaction with their children at 12 months, along with significantly improved marital satisfaction, “consistent with a transactional model of early experience that emphasizes the ‘self-righting’ potential in human adaptations” (pp. 85–86).[125] Just as no regression during pregnancy may be considered an obstacle to making the necessary internal adjustments for caring for a very dependent child, the norm for almost 80% of all couples during pregnancy was experiencing change in their marital relationship. As might be expected, the birth of their first child constitutes a much more dramatic effect on men's adjustment and sense of themselves than do later births.[119]

Despite the profound changes that can occur on intrapsychic and interactional levels, Cowan and Cowan[70] report that there is “a core of stability, predictability, and continuity in personality style as people make the transition to parenthood” (p. 88), a finding replicated in the work of Belsky and Kelly[92] and other research.[75, 76, 126] That is, the often dramatic changes made by individuals as they traverse the trajectory of parenting does not violate their initial rankings of overall adjustment (*i.e.* those who are well initially do better than those whose functioning was poorer initially, who continue to do worse).[127] Furthermore, expectant parents' reports of how negative their own parents' marriage was and how coldly they were reared as children, collected during the last trimester of pregnancy, reliably predicted how profoundly their marital satisfaction would decline over the course of the first year after the birth.[128] These empiric findings are consonant with a psychoanalytic developmental perspective which, while recognizing the potential for important change during new developmental phases, understands the ongoing nature of character structure and adaptation and how it is rooted in early family experiences. As powerful as the transition to parenthood is, it is less a homogenizing influence producing like outcomes than an amplification of earlier differences and trends resulting in even greater variability between couples over time. On a positive and preventive note, the Cowans and Belsky and Kelly note that being able to identify high-risk prospective parents before the birth may be useful in directing supplementary resources and supports before marital functioning plummets further, foreshadowing poorer prospects for child development.

Perhaps the most powerful and important convergence between the psychoanalytic and family perspectives is the potency of social support in moderating the stresses during this vulnerable period and facilitating a positive adaptation. Using individual case histories or qualitative in-depth interviews, psychoanalytic clinician-researchers repeatedly emphasize that to best meet her intensified dependency needs, the pregnant woman needs a supportive, accepting relationship, whether it be with a therapist,[9] a maternal figure,[6] or a nurturant husband.[25] It cannot be stated too strongly that such a need, far from being pathologic, is quite normal and human, akin to the importance of the ongoing need for a secure base[129] throughout a person's development—the paradoxic requirement of having a safe place and person to call home in order to be able to change, grow, and move beyond that home. Both quantitative

and qualitative studies demonstrate that a prospective mother's ability to develop a deep, positive attachment to her unborn child is facilitated by a strong marital bond in which she feels loved and supported.[130, 131, 132] Interestingly, a mother's capacity to parent after delivery appears to become more resilient and less dependent on the status of her marital relationship, as important as that relationship remains for her overall sense of well-being.[80, 133] Rather, after the baby's birth, it is the new father whose parenting competence depends most strongly on his wife's support and the marital relationship and is most highly susceptible to stress.[89, 133, 134] At the same time, Isabella and Belsky[135] report contradictory findings, suggesting that mothers with greater marital unhappiness before and after birth were more likely to have insecure 1-year-olds, whereas there was no such relationship between marital harmony and infant attachment for fathers.

The pregnant woman's heightened psychic vulnerability and need for support are made clear by studies examining pregnancy outcome when such support significantly improves the quality of the birth experience,[136] potentially reduces the risk of pregnancy complications,[137, 138, 139] and increases the chances of a briefer and more benign delivery through the involvement of a supportive companion (*doula*).[140, 141] Research in Germany also suggests that premature births are significantly reduced when additional obstetric support is provided as needed during pregnancy[142] and when marital satisfaction is rated high.[143] All of this research underscores that psychosocial vulnerability is an important risk factor with clear medical consequences that may be alleviated by social support.

In defining social support, quantitative studies report that it is not the number of people in the mother's social network that counts, but the experience of being supported or the quality of those ties.[132, 144] Based on descriptions of optimal nursing care[145] and my own clinical impressions of what most effectively mediates stress and supports vulnerable women coping with complicated pregnancies, three interrelated aspects of an empathic relationship may be distinguished: (1) a genuine acceptance, concern, and caring for the woman, which promotes self-worth and the feeling of being valued; (2) a sense of both feeling with and cognitively understanding what the woman is experiencing, which reduces feelings of isolation; (3) provision of a safe place for the woman to ventilate her pains and fears and be met with realistic and appropriately confident encouragement that she will get through this with help, which affords a sense of being protected. Although what is said and done naturally varies dramatically depending on whether social support is being provided by a husband, friend, parent, therapist, or medical caregiver, there is probably considerable convergence in the structure of different empathic relationships.

The delineation of a “motherhood constellation” offered by Stern[146] provides a useful synthesis of these interrelated themes as he considers the multiple discourses the expectant mother holds with her own mother, her baby, and herself. Recognizing that the form of the constellation varies in different cultures, Stern emphasizes that in our society it entails the biologic task of keeping the baby alive and the multiple relational themes of connecting with the preverbal baby, obtaining the needed social matrix of support, and achieving a reorganization of the woman's own identity.

A woman sought supportive counseling, ostensibly looking for tips in managing her young infant twins born 1 month earlier. Over the course of the next four meetings, it became clear that she was managing the day-to-day parenting of her twins quite well but was distraught over her husband's business trips, recalling how painful it was when he emotionally withdrew from her after her first child was born about 5 years ago. She reported being the oldest of five siblings, the remaining four being born 1 year apart after her. She felt little closeness with her mother, who went to work soon after her birth; her father became the primary caregiver during her infancy. She fought back tears as she described how her father slipped away more and more from her with his deepening dementia due to strokes. Near the end of the consultation, she parenthetically mentioned how her first husband had died almost 15 years previously and how hard it was to get over his death, working 60–80 hours a week until repeated minor physical illnesses led her to obtain limited grief counseling. Her therapist suggested that she was understandably feeling abandoned by her husband's absences, not only because of the very real burdens of managing so many tasks without needed help, but also because his absence was awakening memories of other times when she was left alone to fend for herself—after her first child was born, after her first husband's death, and as a child surrounded by young children. She could readily see how her current feeling as a mom having “so many little ones to care for and no one to care for me” also applied to the responsibility of having to care for younger siblings. Although she decided not to meet regularly for several months as her therapist recommended, she was clearly grateful for the meetings, reported feeling a lot less overwhelmed, and agreed to call back if things got worse.

This vignette highlights how the transition to parenthood blends current marital dynamics (*i.e.* the usual growing apart between spouses when each person follows traditional sex-stereotyped roles) with the history of earlier ties and experiences of being parented. This woman's feelings of being deserted were based less on the actual demands of parenting twins than on evocation of earlier losses, including a childhood of caring for younger siblings with limited maternal support. Optimally, work with this couple

would have included the father's participation to address marital issues directly but, as is not uncommon, the father expressed little interest in participating. This brief intervention appeared to be successful for the mother, probably because of the value of having the sources of her hurts identified and the centrality of her need to be understood respected and affirmed. Again, offering empathic social support seemed to be the critical therapeutic agent, rather than constructing complicated psychologic formulations. Sensitive medical caregivers who can listen to, piece together, and supportively respond to the nuances of someone's distress provide an indispensable function that can sometimes prevent a difficult postpartum adjustment from becoming a more serious clinical depression.

Anthropologic and Historical Contributions

Cultural Differences

Anthropologic studies help us to appreciate how much of what we take for granted as the way things are can be a product of a specific culture. The meanings and feelings of prospective parenthood vary widely among different cultures. Despite the centrality of childbearing in a woman's life in rural northern India, pregnancy there is considered shameful rather than a source of pride, an unsettling reminder of her sexual activity.[147] In Tanzania, adolescence, as the developmental period including and following puberty before adulthood, does not exist. Instead, it is expected that marriage and parenthood will quickly follow puberty, with the potential to bear children accorded the greatest societal respect as the gateway to maturity,[148] in contrast with our society's frowning on adolescent parenthood. In the Cameroon, as in many of the traditional societies, the woman's sole purpose in life is that of bearing and raising children,[149] again contrasting dramatically with the increased respect accorded in western societies to additional or alternative career roles for women. Although modern industrialized countries understand pregnancy in purely biomedical terms, preindustrialized, traditional societies tend to consider pregnancy as a testimony to one's state of harmony with one's family, community, and the spiritual world.[39]

Cultural anthropologists and psychologists demonstrate how early parenting values within a society profoundly shape the 'normal' ways of responding to and treating babies according to the kinds of traits that society seeks to encourage.[55, 150] The prevailing importance of fostering independence and selfsufficiency in American babies may powerfully direct our society's norms of having the baby sleep in a separate room at an early age and the expectation the baby will frequently cry (*i.e.* creating conditions that compel the child from the earliest age to cope by relying on himself or herself). In fact, the United States stands alone as the only society that does not routinely allow some degree of co-sleeping with babies at night; crying babies is very much the exception rather than the norm in those traditional societies in which they are kept close by on a regular basis throughout the day and night.[55] Those societies that wish to promote social cohesion, such as Japan and China, are inclined to accept a baby's needs as a means of incorporating the baby into the social fabric of the culture; this is opposed to the more western, especially American, view of babyhood as a series of developmental milestones to be reached as soon as possible, with much worry if a child falls behind schedule compared with peers.

Historical Considerations

An historical perspective similarly allows us to understand the current western vision of parenthood as a moving and changing picture rather than a permanent image. A combined high rate of pregnancy loss and infant mortality in the preindustrial West (with a newborn's chance of survival until the first birthday being about 60–80%) encouraged pregnancies and babies to be viewed rather anonymously, without individuality,[151] much as babies are still seen in many undeveloped countries today.[39] As recently as fifty years ago in Northern Ireland, pregnancy loss was regarded as “just one of those things” (p. 190)[152]—a normal, almost expected disappointment, and certainly not the tragedy that it is commonly considered to be in western societies today.[34, 153] Although they were given an identity, older children in the preindustrial West were treated with callous disregard and minimal supervision. “Children in all ranks of society up to about the age of 7 were put in the care of whoever was available ... Some 3- and 4-year-olds wandered about freely enough to drown in ditches or be attacked by pigs and dogs on city streets” (p. 140).[151]

The role of parenting and the meaning of children have profoundly changed over the course of American history. In the colonial period, “the relationship between child and father overlapped the relationship between slave and master” (p. 3).[154] Until the mid-19th century, children were commonly viewed as an economic asset rather than primarily as an object of parental love.[155] The 19th century Victorian culture promoted the ideal of maternal love, making mothers most suitable for the care of young children and challenging the legal understanding of children as primarily property of their fathers.[154] The Progressive era in the early part of the 20th century began to institutionalize modern child welfare concerns into public and judicial policy, placing greater importance, for the first time, on the well-being of children.[154] Although the controversy about the danger to children caused by working mothers still rages,[156] throughout the history of the USA children of all social strata have commonly been reared by other people, in addition to—if not instead of—their biologic parents.[157] Examples include colonial apprenticeships, group care of

slave children, white children raised by their Black 'mammies', 19th century utopian cooperative communities, the extended families of many immigrants, and the employment of governesses by the upper class.

In observing the transformations of the paternal role, Demos[158] concluded, “Fatherhood, history reminds us, is a cultural invention” (p. 444). In the premodern era, before the separation of the workplace from the home, fathers were the primary parent to their children, especially sons; they served as teacher, moral guardian, companion, counselor, and model.[158] Most of these roles were lost or profoundly diminished as the father's primary function became that of 'breadwinner' and provider, removing him from the home, family, and children for most of the day and minimizing his daily interaction with and influence on his children.[158] In Griswold's[159] view, the emergence of feminism in the latter half of the 20th century, along with the encroachment of the state and therapeutic domains into parental functions, further eroded the paternal authority. However different the ideals of the colonial patriarch, the 'dad' of the 1950s, or the contemporary egalitarian coparent may be, each supported an involved, active father—something that the detached role of breadwinner need not provide.[160] All of these historical and anthropologic accounts underscore the fact that a culture's definition and expression of parenthood cannot be meaningfully understood apart from the social, historical, and economic forces that impinge on its members.

GROWTH OF PARENTAL LOVE

Assessing 'Bonding'

Bonding has had a rocky history. Klaus and Kennell[161] described a sensitive period soon after birth, during which time parents are optimally sensitive to 'bond' (*i.e.* emotionally attach to) their newborn. This concept has helped to revolutionize the early postpartum period in hospitals by encouraging a more humane experience of family perinatal involvement—as opposed to the earlier sterile (in medical and metaphoric terms) direction of the event, which dictated the separation of newborn from the parents. Research presented in support of the concept of bonding suggested that this early contact promotes not only increased affectionate parent-child interaction in the days following birth, but more sensitive and interactive parenting, increased verbal stimulation, a greater likelihood of breast-feeding, and reduced child abuse for many months and sometimes years after birth.[162] Based on failures to replicate results or methodologic critiques of earlier studies, subsequent reviews and studies have strongly challenged the validity of the concept of bonding as a sensitive period that can exert enduring effects on parental attachment to their children.[163, 164, 165, 166, 167] To Eyers,[168] bonding represented another instance of medical and societal attempts to subjugate women through the regulation of bonding and the induction of guilt by emphasizing their responsibility over their children; her highly polemic feminist critique was met with criticism of her own ideologic bias.[169]

As Klaus and Kennell noted in many of their writings,[162, 170] there are real dangers in the mistaken attribution of an early *critical* period of parental attachment to their young, because, if a parent is deprived of this opportunity because of illness or circumstances, it promotes a sense of guilt and despair that some indispensable ingredient in optimal parental love has been lost. In their own words, “Obviously, in spite of a lack of early contact experienced by parents in hospital births in the past 20 to 30 years, almost all these parents became bonded to their babies. The human is highly adaptable, and there are many fail-safe routes to attachment ... it seems unlikely that such a life-sustaining relationship would be dependent on a single process” (pp. 55, 70).[162]

Although Klaus and Kennell objected to “a too literal acceptance of the word bonding [which] suggested that the speed of this reaction resembles that of epoxy materials” (p. 576),[170] their emphasis on “the principle of a unique period in the human shortly after birth” (p. 39),[162] especially the brevity and sensitivity of that period, no doubt influenced the seemingly justifiable criticism of that concept based on later studies. Other variables that probably play a much greater role than early contact after birth in influencing the fate of parental attachment to their young include interpersonal and environmental factors during pregnancy (*e.g.* quality of the marital relationship, other sources of social support, types of ongoing stressors), intraspsychic dynamics affecting how that baby before and after birth is psychologically conceived, and, “probably most important of all, the way in which each was raised by his or her own parents” (p. 36).[162]

Both direct assessment of parental prenatal attachment to the unborn child[80, 110, 171] and clearcut evidence of the intense grief that usually follows pregnancy loss[34, 153] indicate that 'bonding' typically occurs before birth. Rather than culminating, or beginning, in a single interaction—as powerful and memorable as first contact with one's newborn may be—bonding may best be understood as a much more gradual developmental process that usually deepens over the course of pregnancy, and intensifies after delivery, based on the work and pleasure of caring for the newborn.[80, 172] However, obstetric caregivers should not

use the questioning of a uniquely sensitive period of parental attachment soon after birth as an excuse to disregard the crucial meanings and feelings of family involvement with the newborn or to curb the advances made in humanizing birthing practices. Facilitation and maximization of parental contact with the newborn child, whenever desired, should be restricted only for medical necessity and not for hospital or administrative convenience.

Parental Love: The Psychology of Parental Attachment

Bronfenbrenner's ecologic approach carefully evaluating environmental context,[173] an ego psychologic psychoanalytic framework of child development,[174] and Bowlby's revised ethologic psychoanalytic perspective[175] represent significantly different conceptualizations, which converge on appreciation of the critical need of the human infant for an intimate, enduring, multifaceted relationship with an adult parenting figure for optimal child development. Bowlby aptly titled his model “attachment,” because it is through the early, physically close, and highly interactive relationship of the infant with the parent that the child is able, with sensitive parental responsiveness, to gradually internalize a secure attachment. This enables use of the parent as a secure base from which the child can explore, maintain a positive sense of self-regard, and develop satisfying relationships with others.[129, 175, 176] For such optimal development to occur in the context of meeting a baby's physical needs as well as his or her psychologic requirements for intense, reciprocal adult-child interaction escalating over the course of the first six months,[28, 146] parental devotion and love are demanded. Parental attachment is the necessary complement to the infant's attachment to primary caregiving figures, with each understood to have instinctive underpinnings. In Bowlby's words,[177] each is “preprogrammed, and therefore ready to develop along certain lines when conditions elicit it” (p. 271).

The coarsest way of accessing parental attachment is by measuring its presence or absence on scales of intensity of affectionate feelings toward the unborn child. Although this approach does not do justice to the complex texturing of parental feelings, it highlights those factors that appear to facilitate the growth of parental attachment. Gestational age is clearly positively associated with prepartum attachment, because most prospective mothers indicate a strong affectionate bond with their unborn child during the third trimester, with generally much less sense of the fetus as a person reported during the first trimester, especially before quickening.[80, 171, 178, 179, 180] The more intense and extended grief that is often reported in perinatal loss, compared with miscarriage,[181, 182] also supports the growth of a deeper parental attachment as the pregnancy proceeds. Ultrasound examinations have repeatedly been reported to accelerate parental attachment,[179, 183, 184] which is not surprising because of the powerful way in which the enlarged visual image conveys a sense of a person rather than the less personalized 'fetus'. With the development of embryoscopy,[185] which can provide clear embryonic images as early as six weeks, technology will probably continue to accelerate parental attachment. Another crucial factor facilitating parental attachment is a good marital relationship in general and spousal support for the pregnancy in particular.[80, 130, 131, 132] Outside of the marital relationship, social support facilitates parental attachment,[100] and increased demands and stressors mitigate it.[130]

Although instinctive, biologic factors may influence the genesis of parental attachment (*i.e.* by coinciding with the developing fetus as the pregnancy proceeds), clearly this bond is mediated psychically. When pregnancies are truly unwanted or parenting is not intended, there is little evidence of parental attachment or subsequent grief. With early pregnancy loss, there is a striking difference between the lack of feelings of loss after an elective abortion[186, 187] (notwithstanding the stress in making the decision) and the grief that occurs after miscarriage of a much-wanted pregnancy.[188, 189] Similarly, when a woman without prior disturbance chooses to become a surrogate mother for another couple[190, 191] or freely chooses to make an adoption plan for her child,[192, 193] there appears to be, respectively, minimal or time-limited grief in not parenting that healthy, full-term baby, suggesting little parental attachment. Earlier reports of chronic, unresolved grief and enduring depression among birth mothers[194, 195] were based on small, self-selected samples, often of psychotherapy clients, whose relinquishment occurred decades earlier at a time when, unlike today, other alternatives such as abortion or unmarried parenthood were not legally or socially acceptable. Parental attachment appears to be a variable, psychologic process rather than a biologic, instinctive inevitability of pregnancy. It is based on three crucial ingredients: the motivation to parent, expecting that will occur, and interaction with one's child pre and postpartum. Both evolutionary adaptedness and current circumstances play a crucial role, "But we are primates, and primate females in the right frame of mind find all babies fascinating and attractive. For such females, the most important ingredient for eliciting love is not the molecules producing a particular scent, or genetic relatedness, but physical proximity over time. Whether a new mother will be willing and able to keep her baby close long enough for this old primate magic to work depends on her psychological state, as well as her physical and social circumstances." (p. 116)[43] Parental attachment is optimally achieved when social support both within and outside the marital dyad is high and preoccupying stressors are low, preserving energy for the beginning psychic investment in the baby as a preparation for parenthood. It is also dynamic, with prenatal attachment influencing but by no means decisively determining postpartum attachment.[196]

An alternative investigation of parental attachment explores the qualitative dimensions of that relationship, as opposed to the extent of affection. Sandelowski and Black[197] argued for an “epistemology of expectant parenthood”, in which parents try to get to know the fetus by juxtaposing three overlapping experiences of “relating to the *in utero* being as a baby, relating to the *in utero* being as if it were a baby, and/or merging their dream, womb, and actual babies” (p. 604). In this as in earlier psychoanalytic theories,[6, 9, 10] there is a struggle to sort out the actual sensory experiences of the fetus, the anticipated reality of having a baby, and the dreams and dreads of what that reality could be. Sandelowski and Black reported that, in contrast to the direct correlation of parental attachment with gestational age, “There was no uniform, linear progression evident in the development of relations to the fetus that clearly corresponded to the biologic progression of pregnancy. Couples showed more of an episodic merging of different kinds of reality (fantasy, image, and actuality) than a clear demarcation between them or temporal progression from one kind of reality to another” (p. 610).[197] Stainton[198] reported similar qualitative dimensions of prenatal parental attachment in her depiction of third-trimester mental conceptions of the unborn baby as an idea (*i.e.* fantasies of the child), as a separate presence (*i.e.* another person), as specific infant behaviors (*i.e.* based on actual sensory experiences of the fetus moving), and as an interactive partner (*i.e.* assigning interpersonal and motivated meanings to the fetus). Finally, Raphael-Leff[15] distinguished two different approaches to mothering, contrasting a more interactive, fulfilling relationship with the unborn and outside child (facilitators) with a more burdened, job-like sense of meeting and controlling an infant's many needs (regulators).

Whereas these researchers gathered interview data in their organization of the different categories of parental attachment, Zeanah[199, 200] and his associates used quantitative measures to demonstrate the integrity and stability of parental prenatal perceptions of unborn children. Prenatal maternal perceptions at 37 weeks' gestation of such qualitative dimensions as activity, rhythmicity, and mood were significantly associated with how the baby was viewed six months after birth; only paternal perception of activity remained stable during this period. Interestingly, those mothers whose prenatal perceptions of their infant's temperament changed considerably had very different birth experiences than what they had expected. Perhaps we may consider Klaus and Kennell's concept of bonding less as a sensitive period for the formation of parental attachment than as a period of sensitivity in the transformation of the attachment from the “inside” baby to the “outside” one. That is, in order to preserve the usual continuity in the prepartum and postpartum experience of the baby, as the parental concepts during pregnancy, outlined by Sandelowski and Black and by Stainton, are oriented to the new reality of the outside baby, there must be an opportunity to absorb this transition without unnecessary disruptions such as separations from the baby or disappointed expectations in labor and delivery might elicit. Lest the obvious be forgotten, separation from an already loved being with whom one has lived intimately and inseparably for nine months is a profound change for the new mother, one that early and continued contact helps to reduce.

A woman in her early forties sought help in coping with the death of her 3-year-old daughter from congenital heart disease three years earlier and her two miscarriages that occurred in the following year. Having struggled for many years with secondary infertility, she felt despair about pursuing any further ART but also unable to investigate adoption or to abandon her wish to parent again. Her chronic grief over her daughter became evident. Having another biologic child appeared to be so powerfully desired because of the genetic connection with her deceased daughter, rather than with her husband or herself. In remembering the months after her daughter's birth, she recalled how distraught she had felt over her situation, not wanting to parent a child with such a serious disease and terrified over whether she would be able to care for her child once she left the hospital after the initial surgeries. Over the course of parenting she became deeply attached to the girl, who, despite several serious infections and some moderate physical limitations, appeared to be developing normally into a happy, exuberant child. Her death was traumatizing for the mother, coming after a surgery that had carried a positive expectation of recovery. What seemed most difficult to bear was her profound guilt over not wanting to parent such an ill child and her belief that no good mother would feel such things. Her therapist affirmed her clear maternal love, suggesting that her initial recoil from parenting was a natural reaction to unexpectedly being faced with such a tremendous burden. Although the patient continued to deeply miss her daughter, she began to feel that she deserved another chance to parent and, with her husband, she began to pursue adoption. As she prepared to adopt, her old guilts and anxieties resurfaced. She worried whether could she understand and empathize with a birthmother making an adoption plan (*i.e.* accept someone whom she believed was rejecting her child, as she felt she had done to her own). And she wondered whether she would be able to love an adopted child as much as her dead daughter (*i.e.* would she want to back out of parenting an adopted child, as she initially had wanted to do with her daughter?).

The complexity and legacy of early parental attachments is perhaps most powerfully felt in clinical interactions. During a normal pregnancy this expectant mother was happily anticipating and becoming attached to the wished-for healthy child. The devastating news of her daughter's serious disorder precipitated an intense grief reaction for the healthy child she had lost at birth.[31, 32] Part of that grief included the initial unacceptability of having such a different, seriously ill child, compounded by not having

the early opportunity (due to hospitalization) to get to know and love her ill child through caring for her. What appeared to be most critical in her chronic grieving was not an underlying ambivalence toward becoming a parent but a need to reconcile that initial wish to escape parenting this unwanted, ill child with the desperate longing to parent the dead child she had grown to love. Although extended grief reactions are not atypical after the traumatic death of a child,[201, 202] the extent of her guilt, expression of replacement dynamics in subsequent biologic pregnancies,[34, 203] and degree of fiercely holding onto the memory of her daughter suggested unresolved grief with an anxiety that if she let go of her daughter a bit, she would lose the love for her child completely, becoming the bad mother who never cared enough. Although she was not physically pregnant, her psychic preparation for adoption seemed to evoke a resurgence of earlier concerns (in this case, unresolved grief), which typically occurs during gestation. This appeared not to be an indication that she was not ready to parent but another opportunity to rework those issues more completely.

Perhaps the most striking and important body of research in this area documents the powerful influence of parental schemas or models on infant social development. Using either the Adult Attachment Interview[204, 205, 206] or the Working Model of the Child Interview,[207] research teams were able, with high reliability, to distinguish the degree of coherence and organization in expectant parents' accounts of their own rearing in childhood. Each of these investigations reported that it was the ability of prospective parents to describe in a balanced and thoughtful manner their own history of being parented—not how happy or unhappy that childhood was—that significantly influenced whether their children at 1 year and beyond would be securely attached. Based on the prenatal parental classifications on these quantitatively scored interviews, the predictions of infant security at 1 year were about 75–80% accurate (compared with 50% by chance alone). It was proposed that the parental capacity for self-reflection (which enables parental sensitivity to, understanding of, and responsiveness to the infant's mental and emotional world) provides a decisive influence on the child's development of secure attachment.[206, 208] That this self-reflective function indexed a critical aspect of the parent-child relationship, as opposed to being correlated with other important intervening variables, is demonstrated by the independence of self-reflection from cultural factors such as social class, ethnicity, and parental education, including verbal intelligence.[208] Similarly, a child's attachment classification was independently based on each parent's own prenatal classification, suggesting that this function does not represent an inborn temperament generalized across relationships.[208]

This research offers a valuable way of synthesizing the crucial cognitive and affective facets of parental empathy rooted in the ability to meaningfully (which means emotionally) connect with one's own childhood legacy. It echoes the important clinical observations of Fraiberg and her colleagues,[209] who suggested almost 30 years ago that a critical difference between parents abused as children who were able to circumvent their earlier traumatic history and those who repeated them in some form as parents was the capacity of the former to remember and feel their childhood pain, not resorting to the maladaptive defenses of avoidance, denial, repression, or detachment.[210] This research also resonates with the findings of earlier psychoanalytic investigators,[6, 9, 62] who highlighted how powerfully those earlier experiences of being parented are revived in pregnancy—not, again, with their inevitable repetition in the next generation, but with potential revision through the acquisition of increased empathic awareness.

Evolutionary Psychology: The Primacy of Genetic Ties

Sociobiology (or its updated expression, evolutionary psychology) extends Darwinian theory in maintaining that a primary goal of the human species is the propagation of one's individual genes and “that a predominant quality to be expected in a successful gene is ruthless selfishness” (p. 2).[211] Evolutionary psychology has been used to explain a wide variety of human behaviors and interactions, including sexual attraction and mating, aggression, and social behavior,[212, 213, 214] and was offered as a unifying explanatory framework embracing an understanding of the arts, religion, and philosophy.[215] For our purposes, the contributions of evolutionary psychology will be limited to its beliefs about parenthood: (1) parental investment is essentially based on having biologic children who share one's genes; (2) because women's extended periods of pregnancy give them less capacity for genetic propagation than men have, women are more likely than men to invest in individual pregnancies and parenting of children; (3) child-parent conflict is based on children's seeking as much protection and parental involvement as possible from parents who, sharing only half their genetic complement with any one child, are motivated to continue their genetic propagation through bearing other children; (4) parental investment in biologic children will be diminished in instances where social or biologic circumstances make it less likely that the infant will survive (*e.g.* deformity, poverty, lack of social supports)[212, 214, 216] Evidence supporting these hypotheses tends to come from similar findings among other mammalian species,[212] from cross-cultural and historical studies among humans (*e.g.* the much greater likelihood of impoverished women to commit infanticide or the greater frequency in general of allowing ill infants to die),[214, 216] and from statistical data (*e.g.* the profoundly higher rates of parental abuse, especially homicide, among nonbiologic parents, particularly stepfathers).[216]

Evolutionary psychologists emphasize that their *description* of human nature should not be confused with a *prescription* for a 'natural' formula for morality or a *prediction* of all behavior implying that individuals have no other recourse than to slavishly obey their genes.[211, 214] However, there is often a readiness to apply simplistic, reductionistic equations that deny other more plausible and available hypotheses. For example, Pinker[214] asserted that the reason children do not murder their young siblings is the fact of their shared genes rather than feelings of affiliative connection based on their being part of a family—which, for children, is usually based much more on regular, daily contact than on biologic kinship.[217] More importantly, evolutionary psychology does not address substantial data contrary to its predictions: the normal early child development and optimal parental responsiveness commonly found in adoptive families;[81, 218, 219, 220] the significantly lower divorce rates among many families with nonbiologic children compared with biologic families;[81, 83] the relatively minimal grief that occurs after elective abortion of a healthy fetus, in contrast with the profound grief experienced after loss of a much-wanted pregnancy loss or termination due to fetal anomaly;[153, 186, 187, 221] the dramatic reduction in reproductive motivation and family size among the most economically wealthy and advanced western industrialized societies;[222] the increased separation of sexual relations and pleasure from reproduction in the widespread use of birth control; and the increased feeling of well-being and absence of grief after elective sterilization.[223, 224, 225] Although evolutionary psychology may offer some insights into broad influences on parental investment, when it is applied to actual people, qualification is needed and much more consideration needs to be given to individual factors influencing parental motivation and capacity, as well as the impact of one's experience of being parented on parental attachment. Rates of such a rare and highly deviant behavior as nonrelative homicide (maximally at about 20 per million)[216] do not provide convincing evidence of a powerful influence that is supposed to generalize across an entire species. It is more difficult for evolutionary psychologists to explain the much more common occurrence of child abuse and neglect in biologic families, undercutting the concept of maternal instinct.[174]

Situated at the opposite end of the 'maternal instinct' controversy are the theories of some anthropologists, sociologists, and psychologists who argue for an almost completely cultural determination of personality and, for our study, parental involvement. Chodorow[117] integrated psychoanalytic object-relations theory with Marxism in viewing the greater feminine capacity to parent as being rooted not at all in biology but in an especially close mother-daughter relationship, which promotes nurturance, whereas the more emotionally detached, pseudoindependent masculine development is suited for a more socially dominant role in a patriarchal, capitalist society. Eyer[168, 226] rejected the ideas of parental bonding and childhood attachment, believing that such “scientific fictions” assign women greater biologically based responsibility for the rearing of children, leading to cultural oppression of women through guilt induction. Both pioneers of cultural anthropology[227, 228] and contemporary proponents[229, 230, 231] argue that the determination of kinship and parental relations is not a biologic product but a cultural construct: “a kinship system does not exist in the objective ties of descent or consanguinity between individuals. It exists only in human consciousness; it is an arbitrary system of representations, not the spontaneous development of a real situation” (p. 50).[227]

Although cultural anthropology may help us to reconsider what is human-made (*i.e.* kinship systems and relations) despite our attributions to nature, the ideologic fervor and bias of some (*e.g.* Eyer, Chodorow) may limit their objectivity. There is a middle ground, which postulates the existence of evolutionary, biologic forces influencing human development while recognizing the powerful impact of enculturation in widely different societies, thereby allowing for maximal flexibility and adaptability to different human environments. Rossi[232] suggested that, although gender differences appear to have some biologic basis, this does not preclude a societal encouragement of balancing masculine and feminine characteristics within an individual for more adaptive parental functioning and overall well-being, concluding that “organisms are not passive objects acted upon by internal genetic forces, as some sociobiologists claim, nor are they passive objects acted upon by external environmental forces, as some social scientists claim” (p. 11). Similarly, researchers who subscribe to ethnopediatrics, such as Small,[55] believe that the most complete and effective understanding of human development and parenting takes into consideration both biologic-genetic and cultural factors in evaluating whether cultural ideals appear to promote or compromise biologic functioning. For example, the significantly lower rates of sudden infant death syndrome in cultures where babies sleep with an adult suggests that western, particularly American, demands for the earliest night-time separation of baby and parent may be biologically counterproductive; the reduced crying and improved mood of babies who are held for longer and more frequent periods suggests that such responsiveness does not produce spoiled children but instead is in synchrony with optimal biologic parameters for a closely entwined parent-child relationship.

Finally, alternative evolutionary perspectives that are not rooted in simplistic, automatic reproductive propagation of one's genes are worthy of consideration. Bowlby's model of attachment[175] assumes that evolutionary adaptiveness demands a close physical relationship between infant and parent to ensure the survival of a helpless baby in a threatening environment with protective parents ever-present. Although the fewer external dangers in modern civilization may no longer require such close physical proximity, the

importance of intense reciprocal synchronous exchanges in entrainment for optimal cognitive and emotional development[28, 55, 146] suggests additional evolutionary benefits for a peculiar creature whose initial physical helplessness is matched only by its eventually highly individualized and independent capacity to act in creative, highly flexible and adaptive, noninstinctive ways. That is, the intensely social and emotional interaction between parent and infant may facilitate the creation of highly nuanced and textured social relationships among humans through internalized schemas of those interactions. This goes under the name of 'object relations' in psychoanalytic theory, and it is reproduced psychically from one generation to the next via the transmission of attachment patterns, with potential for modification, from one generation to the next (see earlier discussion). More crucial than the sharing of genes in the determination of parenting and parental investment may be the biologic, evolutionarily advantageous underpinnings of a psychologic propagation between parent and infant of early modes of interaction sensitive to individual, marital, and cultural influences embodied in psychoanalytic, family, and cross-cultural research.

PARENTHOOD AND NEW REPRODUCTIVE TECHNOLOGIES

Creating New Parents

Medically assisted reproductive technologies (ART) now allow for a separation of coital, genetic, gestational, psychologic, and legal parenthoods—components that previously were typically united in the parenting of children reproduced by a coital, married husband and wife. The psychologic parent is understood as the adult who performs most parenting functions and is usually regarded as Mom or Dad in the eyes of the child.[174] This relationship is initially established in the first year of life with the parents as the figures to whom the child is most powerfully attached.[175, 176] It is now possible to be a noncoital, genetic, gestational, psychologic, and legal parent (*i.e.* via IVF); a noncoital, nongenetic, gestational, psychologic, and legal parent (*i.e.* through a married couple's use of another person's sperm or egg donation); a noncoital, genetic, nongestational, psychologic, and legal parent (*i.e.* via use of a host womb, with another woman carrying the pregnancy of the married couple through IVF); or a noncoital, nongenetic, nongestational, psychologic, and legal parent (*i.e.* through IVF surrogacy in which a woman carries the pregnancy of other individuals' donated egg and sperm). This sampling of the possibilities does not exhaust the options. Furthermore, each possibility creates another set of potential parents. For example, an egg donor is a genetic, nongestational, nonlegal, nonpsychologic parent, whereas in traditional surrogacy (*i.e.* using the surrogate's own egg), the surrogate is the genetic, gestational, nonpsychologic, nonlegal parent—a position identical to that of a birthmother in a finalized adoption but different because the surrogacy conception is intended and noncoital, as opposed to the coital, unplanned nature of an adoptee birth. If a gay couple separates, the nongenetic, nongestational parent may possess no parental rights even if that partner was the primary psychologic parent in a nonlegally sanctioned parental relationship.

Dissecting these components or different interpretations of parenthood may help us appreciate that ART signifies not only a medical revolution but a profound cultural challenge as to how we as a society define parenthood. Although the legislatures and the courts will by force make legal determinations of parenthood, the need to balance the importance of societal historical traditions, religious beliefs, and ethical systems with the individuals' own psychic investment, genetic connections, gestational involvement, and intentionality make this a profoundly complicated area for which there are no simple solutions or consensual guidelines.

A wealth of books has examined the myriad implications of ART from multiple perspectives, including ethical considerations,[233, 234, 235] psychologic ramifications,[236, 237] religious beliefs,[238, 239] legal interpretations,[240]cross-cultural applications,[241, 242, 243] and feminist and gay/lesbian studies.[244, 245, 246] Ethical concerns include the dangers of transforming gametes, and thereby their 'products' (*i.e.* children) into commodities on the open market; the pressure to become a parent—especially a mother—at any cost in order to feel that one is a whole person; and the increased importance of a biologic connection (genetic or gestational) as a crucial ingredient in being a parent.[234, 235, 245, 247, 248] Although some oppose virtually all ART because of their belief that these technologies desecrate traditional reproduction in the context of the legally and spiritually sanctioned heterosexual marriage,[238, 249] others consider most centrally the impact these approaches may have on their recipients—the children so reproduced.[235, 239] Some argue for the greatest degree of reproductive options for adults, refuting the consensual outrage against human cloning[250] or emphasizing that “to deny procreative choice is to deny or impose a crucial self-defining experience, thus denying persons respect and dignity at the most basic level” (p. 4).[251]

Before a clinical vignette illustrating some of the marital issues that can arise in making third-party reproductive decisions is presented, the available parenting outcome data on ART are reviewed, and the controversial issue of parental disclosure to children of gamete donation is considered. Most outcome

research is based on ART involving donated semen or eggs. Surrogacy outcome studies suggest that, in programs that carefully screen potential surrogates to verify that they are normally adjusted, have no current wish to parent more children in their own family, and do not view the financial payment as a central motivating factor, most surrogates describe a positive experience, with postpartum grief rarely reported.[190, 191, 252] Research is needed to assess the functioning and well-being of children born through surrogacy arrangements.

The research done to date suggests that ART procedures such as IVF (with or without gamete donation) do not interfere with healthy and normal family functioning. In two small studies, children born via IVF or DI (donor insemination) appeared at 8 years of age to be progressing normally with no significant differences from coitally conceived children,[220, 253] findings consistent with a review of the literature.[254] In the study by Golombok and colleagues in England,[220] which was replicated in Spain, Italy, and the Netherlands,[255] parents of children conceived via DI or IVF were significantly warmer and more involved than parents of coitally conceived children. A control group of adoptive parents functioned similarly to the ART group, leading the authors to suggest that “genetic ties are less important for family functioning than a strong desire for parenthood” (p. 296).[220] Other studies support this view, documenting IVF parents (as compared to non-ART parents) reporting significantly greater warmth,[256] positive feelings,[257] or higher emotional involvement and parental competence[258] with their child. Follow-up studies of Golombok's IVF families of now adolescent children continued to report normal development with significantly higher parental involvement and enjoyment in the European study,[259] but significantly less sensitive emotional responding among IVF *vs.* non-ART parents.[260] This decreased parental sensitivity in the UK sample compared to the earlier Golombok study[220] was not associated with dysfunctional family or child functioning, but rather an average rather than superior adjustment. The reporting of overprotectiveness often associated with IVF parenting[256, 257, 259, 261] may explain the greater difficulties these parents may encounter as they confront their adolescent children's striving for more independence. Research based on interviews of 50 couples indicated that DI did not appear to interfere with the marital relationship or parental motivation.[262] Golombok's study reported significantly greater marital difficulties among the group with coital conception,[220] although a Chinese study reported IVF mothers expressing significantly less satisfaction with their family life, perhaps due to the greater burden of dealing with infertility stigma in that culture.[256] The intense desire to parent, which motivates the decision to pursue ART or adoption, may mitigate the usual stresses and marital disharmony in the transition to traditional biologic parenthood. This agrees with earlier reported findings supporting the positive impact of a planned pregnancy on marital, parental, and child functioning.

Although the norm for DI in the United States is anonymity between donor and prospective parents, centers are increasingly making available access to donor identity when the resulting child reaches 18 years of age—a procedure that is has become mandatory in Sweden, Austria, UK, Switzerland, Norway, the Netherlands, New Zealand, and many Australian states.[263, 264] The fear that lack of a guarantee of anonymity will seriously reduce the supply of donors is not being borne out in Sweden and elsewhere,[265, 266] although the counter-charges that preservation of anonymity promotes “lethal secrets”[267] inevitably destructive to all parties concerned appears to be exaggerated and not based on scientific research. For now it would seem that allowing maximal flexibility for matching of donors and recipients, based at least in part on similar beliefs and needs regarding access to information, is a sensible approach.

Only within the last 20 years has the medical profession moved away from its earlier recommendations not to reveal third-party involvement in ART to the children concerned.[264, 268] The American Society for Reproductive Medicine (ASRM) now encourages that offspring of DI be told of their origins, with access to donor information, to accommodate the different disclosure preferences of donors and recipients; at the same time ASRM recommends parents must ultimately decide for themselves how to handle disclosure issues, optimally with the input of qualified mental health counseling.[269] The increasingly common recommendation to parents to disclose to children their origins is based on the feared damage to identity formation and trust in parents created by secrecy and anonymity in adoptive situations (and the practical likelihood that these children will eventually discover their origins from others), the generally destructive consequences of secrets noted in the family therapy literature, the increased value of genetic information with greater ability to diagnose and treat genetic conditions, and the belief that children have a right to know about their beginnings.[266, 267, 269, 270, 271, 272] Despite this new orientation to openness, most couples using DI do not intend to reveal to their children how they were conceived, for a multitude of reasons: stigma about the father's infertility, anxiety about undermining the parental role of the nongenetic parent, anxiety about creating distress in the child due to the lack of biologic connection with one parent, uncertainty as to how and when to reveal these facts, lack of information about the donor, and fears of societal disapproval.[268, 269, 273, 274] Although changes in adoption practice toward greater openness have often been used as an argument to change accordingly the DI guidelines regarding disclosure, several researchers emphasize the differences, distinguishing the two situations in terms of intentionality of the pregnancy, societal attitudes about each, and the biologic connection to one parent in DI.[268, 273, 275]

The growing consensus recommending disclosure to the child of his/her origins appears to be significantly increasing the disclosure rates among DI parents. Whereas none of the 111 DI parents in Golombok's first European study[255] disclosed the genetic origins to their children, this increased to about a 10% disclosure rate in their adolescent follow-up study.[259] As the norm of disclosure is becoming more established, two studies, one in New Zealand[276] and the other in northern California[277] reported disclosure rates approaching one third of all parents. Clearly parents struggle with this decision, being influenced by multiple sources including the local sociopolitical environment, professional opinions, counseling, and religous, ethical and cultural beliefs.[278] Most couples are able to come to a united position through negotiating differences and sometimes deferring to the stronger beliefs of a partner.[278] Intention (not always the same as actual behavior) is flexible and could be significantly impacted by seminars using an educational orientation examining the medical, legal, and psychosocial aspects of DI family building, which could increase the plan of telling one's DI offspring twofold from 42% before the seminar to 90% after it.[264] The success of this approach may be its normalizing intent, shifting disclosure away from the stigmatizing estrangement of the child's different, unknown origins (*i.e.* the bringer of bad news) and, instead, more affirmatively and openly discussing DI as a positive form of building one's family, more proudly defining who we are.[264, 279] This increased empathic connection appears similar to the increased ability of adoptive families to more comfortably recognize their 'shared fate' in more openly accepting their differences from biological families.[280] The greater comfort among 'normalizing' disclosers *vs.* those more anxious about stirring up disturbing news may distinguish the more relaxed early disclosers from the more reluctant, uneasy parents who choose to delay telling as long as feasible.[277]

Despite the ongoing controversy regarding disclosure, outcome studies reveal similar findings. Just as ART was not found to impair marital, parental, or child functioning, the decision not to disclose DI to children or others did not seem to significantly affect parental bonding or warmth,[274] did not appear to represent a source of psychopathology,[281] and did not appear to impair child development.[220] While these studies are limited to pre-teen children, more recent follow-up studies[259, 282] report normal development among DI early adolescents with or without disclosure. There is some evidence that nondisclosure may subtly impair paternal relationships, with reduced warmth when motivated by stigma over male infertility[274]as well as an association of disclosure with a more relaxed family style involving fewer family arguments, less strict discipline, and fewer child conduct problems.[283] It should be remembered that these correlations do not necessarily mean disclosure is the causal agent. The psychological and family dynamics reported among disclosers and non-disclosing may predispose which alternative is chosen.

As always, taking into consideration the different circumstances, perspectives, and needs of different couples is crucial, rather than constructing uniform recommendations deemed suitable for all. What may be as important as the decision to tell or not to tell may be the underlying motivations and feelings about the origins of one's child. If nondisclosure is driven by a persisting shame in one's infertility and/or a belief that genetic connection with one's child is integral to parental authority and family legitimacy, it is hard to imagine that such convictions will not in some manner and at some point impair parental self-esteem and functioning. Part of the value of dealing with the process of discussing DI with children and others is facilitating parental resolution of their feelings about being a couple who are both biologic and nonbiologic parents. Nondisclosure to others does not erase that reality and optimally requires other strategies of dealing with the parents' feelings between themselves.

A couple in their early thirties came into conjoint counseling, bitterly divided over how to proceed with their infertility treatments. Having learned within the past year that, even with additional surgery, the likelihood of the husband's being able to inseminate his wife was less than 10%, the wife was despairing over her husband's reluctance to pursue insemination by donor. He questioned whether the marriage was “broken,” and, with mounting anger and hurt, the wife was ready to leave him if he was unable to come to a decision soon. He complained about his wife's single-minded determination to become a mother and her not seeming to care about how their sex life had deteriorated over the past year. The wife was open to the idea of a donor egg, feeling that being the gestational mother was more important to her than the genetic connection, but the husband felt that this would unfairly deny his wife her potential genetic contribution to their child. Both reported a strong marriage and mutual attachment before the discovery of infertility two years earlier. The therapist indicated that it was necessary for the woman to reduce her pressure on her husband to make an immediate decision and to let him have some space, in the recommended individual sessions, to explore his feelings about being a nonbiologic father. In the first individual session, the husband's fears about being a distant, uninvolved dad were linked to his father's favoring himself and a brother over an older biologic half-brother who was born out of wedlock before his parents married. It also became clear that he had never really gotten to know his father, who was frequently away from home on business, detached when he was there, and eventually a rare visitor after the parents divorced during his adolescence. Although he seemed to limit his expression of hurt and loss over the lack of his father's involvement, identification of these sources of anxiety about his own fathering, and the breathing room, allowed for him to decide for himself whether to proceed with DI and strengthened his wish to go ahead with it. He began to feel glimmerings of excitement over the possibility that his wife could become

pregnant. Although they both planned to disclose his or her birth origins to the child, they chose to tell no one for now about their use of DI. Over the course of the ongoing, simultaneous couples work, it became clear that the wife's intense pressure on her husband and her feeling of being profoundly injured by his lack of appreciation of the importance of her desire for motherhood were fueled by her chronic hurt from having an authoritarian, controlling, and demeaning father who would often humiliate her by his criticisms. As they began to go ahead with DI, the man's grief over not having a biologic child became more palpable: “It almost killed me when I looked through the donor book.” His therapist gently explained that it may have felt like the death of his biologic child. Although initially the wife despaired over her husband's need to temporarily back off, fearing he was getting “cold feet” again, she was able to become more understanding, recognizing that his mixed feelings were a normal expression of his sadness at not being a biologic participant in his wife's pregnancy and his continuing anxiety over how good a father he would be. Based on seeing his interactions with children in and out of the family, she was convinced he would be a great dad. He cried long and hard after the insemination, while feeling some hope it would work. She was able to comfort him, pleased that he could share his feelings with her more openly than before. The news that the first insemination was unsuccessful was met with both disappointment and some relief by the husband. By the next insemination, his mixed feelings were more muted and the couple were both more excited by the possible prospect of becoming parents. Although the therapy ended prematurely due to an abrupt job relocation out of town, the couple appeared to be much closer after five months of weekly meetings. A year later, the therapist received the birth announcement of their son.

In this case, multiple individual and couples' issues surfaced in response to a reproductive crisis in a basically sound marriage. Given the opportunity to heal the narcissistic injury of his infertility (displaced onto feeling that his marriage was “broken”) and the hurt and sadness of his distant relationship with his father, this man was able to conceive of a different paternity—psychologically closer despite biologic discontinuity—with his own child. Although there was no in-depth exploration of his intense childhood pains, there was sufficient identification of the origins of the current resurgence of his feelings to allay anxieties, enabling him to move ahead with reproductive plans. Similarly, although the wife's powerfully diminished self-esteem and identification with a bullying, controlling father was not resolved, there was sufficient interpretation of her reliving those feelings about her father with her husband to enable an adaptive resuming of the closer marital ties and empathy they had enjoyed before the infertility. His ability to share his grief with her helped her to feel more valued and closer to him. Although insight-oriented interpretive work has a place in this focused treatment, it is not designed to resolve chronic emotional difficulties but to identify and modify a current impasse in order to return to a previous higher level of internal and interpersonal functioning. Working with the couple as they were undergoing the DI was especially useful,[284] because it enabled a thorough normalizing and processing of grief over the lost biologic child as it was concretely and currently experienced.

Brave New Worlds: Implications for Society, Families, and Children

Although ART directly affects a relatively small proportion of parents today, its social ramifications may much more broadly influence how we understand parenthood and family in our society. This concluding section explores some of those repercussions, including and summarizing earlier key insights where applicable.

Backing Off From Biology

Whereas the pursuit of ART is based, in part, on preserving the biologic-genetic or gestational tie with one's child, it may ironically serve to challenge the prior indivisible equation of biologic reproduction with parenthood. As Strathern[230] concludes, “The more facilitation is given to the biologic reproduction of human persons, the harder it is to think of a domain of natural facts independent of social intervention” (pp. 167–168). With greater human intrusion into and modification of reproduction, parenthood may be invested less with the inviolability of nature than with the contingency of social construction. Although reducing the exclusive reliance on biologic reproduction in ascribing parenthood may be influenced by the social implications of ART, history reminds us that nonbiologic forms of parenthood and family have been prominent in our and many other societies. About 50% of households in tribal cultures, such as the African Hausa, the Iban of Borneo, and the Ojibwa of North America, include adopted children,[37] with nonbiological children reared in over 25% of Hawaiian households.[285] The interpretation of kinship in some of these societies strikingly resembles the concept of attachment rooted in interactive nurturance rather than genetic terms, "By feeding and caring for a child, the substance of the adult is transferred to that child. The referent in this case is not shared biogenetic substance but a substance conceived in terms of the fruits of human effort, close association, and enduring solidarity" (p. 54).[286]

Historically, the relatively minor role of nature in defining family in the ancient Roman Empire enabled a high frequency of adoption there.[287] As many as 10–40% of European urban children were abandoned by their biologic families and adopted through the Middle Ages.[288] More than half of the settlers in the

American Chesapeake colonies arrived as child servants, indentured to nonbiologic households,[154] just as parenting responsibilities often fell to nonbiologically related adults throughout the 19th and 20th centuries.[157] From the child's perspective, fulfilment of parental tasks in an ongoing, nurturant relationship is a much more important determinant of parenthood than biologic connection.[174, 176, 217]

This is not to say that biologic contributions to parenthood are inconsequential. Psychoanalytic investigators have highlighted how the biology of pregnancy initiates crucial psychologic adaptive regression in preparation for child-rearing. Mammalian hormonal studies have clearly indicated the increased readiness of parturient females to behave maternally. However, hormonal studies also demonstrate that within days the experience of parenting mammalian babies enables other caretaking adults to function as effective parents. Psychoanalytic research and clinical studies discussed earlier strongly support and predict the profound contributions early parenting experiences make to parental efficacy, just as family research has underscored the importance of the current marital relationship on parental, especially paternal, involvement. The use of biologic (*i.e.* genetic) heritage as the ultimate criterion of parenthood is a social norm that runs contrary to the voluminous evidence that such associations are neither necessary nor sufficient for nurturant parental ties. For obstetricians who work in the realm of biologic reproduction, it is especially important to remember that those processes are primarily a means to rather than an exclusive determinant of parenthood.

Although the pervasive application of biologic connections in determining kinship cross-culturally suggests the importance of those bonds in the definition of family, this needs to be distinguished from the greater role that psychic ties play in the determination of parenthood. As studies of open adoption indicate,[289, 290, 291, 292] maintenance of some ongoing contact with one's birth family does not diminish and may often enrich ties to one's adoptive parents and family. On a broader multicultural level, the globalization of communication and transportation today enables many immigrants to actively maintain their original ethnic and national identities even as they integrate into a new cultural environment.[293]

Breaking Away From Tradition

Whereas ART's human-made splintering of pregnancy into multiple gestational and genetic pathways undercuts the biologic (*i.e.* natural) underpinning of reproduction, the additional removal of heterosexual intercourse in socially sanctioned marriage as the sole acceptable route to reproduction challenges the traditional view of the heterosexual, procreating couple as the basis for parenthood. As Dolgin[240] explains, “That children are conceived pursuant to contractual arrangements involving the exchange of money; that conception need not begin with sexual intercourse, and need not occur within the body of a woman; that the genetic makeup of a child (and its cloned twin or triplet) can be selected from a panoply of genetic options—these factors pose a profound threat to the ideology of family as it developed in the early years of the Industrial Revolution and was elaborated and glorified in the succeeding two centuries” (p. 246). The increased incidence of single parenthood as a product of both divorce and out-of-wedlock pregnancy over the past decades has redefined the principal participants of the traditional family, just as the extraction of sexual intercourse from ART has redefined the cherished process of human reproduction. It was not so long ago that abortion and, before that, contraception were illegal;[294] this highlights, especially for the latter, an earlier cultural equation of intercourse with reproduction that in our era may appear quaint. The complete elimination of sexual intercourse in IVF—through both the absence of coitus and the human manipulation of conception outside the body—led to intense debate in the mid-1970s, with images of artificially incubated 'test-tube' babies.[295] This contrasts with the widespread acceptance of IVF today, apart from some religious traditionalists who, in some ways quite accurately, view all ART as an assault on the traditional family and parenthood.[238] Today it is the increasingly realistic possibility of human cloning that provokes the most intense revulsion, as people irrationally but understandably assume that a clone would be a carbon copy of the person from whose genes 'it' was derived, again reverting to the pervasive but erroneous equation of self with genes despite evidence to the contrary.[250] Based on the dramatic differences in *in utero* and external rearing environments between a fetus cloned from an adult compared with identical twins, one would expect identical twins to be much more alike than the clone would be like its progenitor. However, in the most complete desecration of the heterosexual, procreating couple, cloning violates the union of male and female gametes, a feat that is laden with profound cultural and religious meanings. The pioneer of recent successful cloning of mice, Dr. Yanagimachi, clearly stated this view regarding application of his technology to human cloning: “If all the humans on the face of the earth were infertile, this may be justified. But until then we should stick to reproduction in the way that Mother Nature did it for us” (p. A10).[296] Although there may be good reasons to be skeptical of the grandiose or narcissistic motives fueling wishes to clone, understanding of the misconceptions, distortions, and prejudice against cloning, as Pence[250] pointed out, is necessary in order to more dispassionately consider its potential value.

ART represents one important tributary contributing to the torrent of social change that is already redefining the traditional procreating nuclear family as the normative ideal.[297, 298] Greater regulation and

modification of the biology of reproduction undercuts its 'natural' foundation (*i.e.* that which occurs via nature without human intervention), on which a traditional model of parenthood is based. The role obstetricians may be called on to play in support of traditional norms of parenthood is clear: “To ensure that subsidies for medical infertility are preserved, doctors would need to restrict publicly funded services to infertile heterosexual couples of normal reproductive age” (p. 323).[299] A strong case can be made that obstetricians should not be compelled to perform medical procedures (*e.g.* abortion, ART) that violate their ethical beliefs so long as all patients have access to these services.[300] However, scientific evidence should play an important role—even if not always the exclusively determining one—in informing one's professional opinions and decisions. Therefore, for example, obstetricians need to be aware that despite anecdotally based reports of a 'postabortion syndrome' of significant emotional difficulties after an abortion, the vast majority of women who electively choose to end an unwanted pregnancy demonstrate no negative emotional consequences,[187] with the development of major problems “miniscule from a public health perspective” (p. 32), according to the Surgeon General's report in 1989.[186] Similarly, although it frequently is assumed that gay or lesbian couples are not suitable parents, many studies indicate that children raised in lesbian households develop normally without disturbed gender development or significant emotional difficulties.[301, 302, 303, 304, 305] Although it is unclear how the oldest parents fare, women who postpone parenthood until after age 35 report fewer physical complaints and increased satisfaction with their life situation at 1 year after delivery, compared with younger women.[294] Although increased motivation for parenthood may account for this positive adaptation for many, older parents represent a diverse group, with the midlife parental experience influenced by four key factors: social class, gender, life events, and intervening social psychologic processes.[306] Obstetricians need not personally endorse alternative family arrangements to recognize that the traditional American nuclear family is not all-purpose and that other forms of parenthood and family structure may more effectively meet the needs of many parents and their children. As observed by Fasouliotis and Schenker in their review of ART, "... society, either as expressed through laws or legislation, or as influenced by religious or cultural issues, maintains in the majority of cases a more compassionate and supporting role to the normal heterosexual family (marriage or stable relationship), and hesitates to provide full access to other 'deviated' groups. On the other hand, findings from recent studies suggest that all of these 'new' aspects of family structure may matter less for children's psychological adjustment than warm and supportive relationships with parents and a positive family environment" (p. 29).[307]

Fortifying Fathers

As obstetricians know quite well, the woman's role in reproduction substantially dwarfs that of the man. Perhaps in part echoing that biologic reality, most cultures define fertility and reproduction as the woman's realm, especially in non-Western societies, in which feminine identity is often based on biologic motherhood.[36, 37, 39, 243, 308] ART, combined with a postmodernist critique of categories such as gender, which are understood as contingent and socially constructed rather than rigidly, biologically fixed, is viewed as “taking nature out of mother”.[309] Again this coincides with important social currents in which mothers, whether single or married, are much more likely to be working full-time today than in past decades, making parenthood not the central daytime activity for most mothers. Although fathers in dual wage-earner households do not spend more time with their children than those with stay-at-home mothers, the proportion of their children's total parental time with father increases.[121] Just as ART has been seen to undercut the biologic and traditional forms of parenthood, increased control of the female reproductive system may weaken and transform the dominance of maternity (*i.e. Mother* Nature) over paternity that has reigned since fathers left domestic households to become breadwinners during the Industrial Revolution. The greater importance of fatherhood may help to fill the gap created by the less central role motherhood plays in women's lives due to ART, feminism, and women's increased presence in the workplace. When fathers become equal, not marginal, parents, typically their well-being, their marriage, and their children's development all benefit. As mediators of the earliest relationships between prospective parents and their children-to-be, obstetricians can play a vital role in facilitating paternal ties by including expectant dads as much as possible during prenatal appointments and, so long as they are comfortable, during labor and delivery.

Respecting Children's Rights

Analagous to how the pursuit of some forms of biologic parenthood in ART may ironically undercut the equation of biologic reproduction with parenthood, the danger of transforming children into commodities in the marketing of ART may enhance societal concern over what is in the best interests of children. As Daniels[263] observed, “It seems inappropriate to think of a potential child as a ‘patient,’ yet virtually every government or government-appointed committee set up to review ART has stated that the ‘welfare of the child’ must be taken into account in the provision of services” (p. 374). Whether it is phrased as the right of children to know about their origins (*e.g.* through DI),[83, 266, 267, 269, 270, 271, 272] or concerns about the impact on a child of learning that financial contractual arrangements led to his or her birth through surrogacy,[310] or the feared second-class status attributed to human clones,[250] ART is promoting a concern about

children's well-being that, ironically, has usually been strangely missing from traditional biologic parenthood: “Historically, biological parenthood has been recognized or denied by law to promote marriage, to protect inheritance rights and to elicit child support. It was almost never invoked to promote the best interests of the child. In recent times the rights of biological parents have flourished over those of nonparents, but still without regard of the best interests of children” (p. 191).[154] Ethicists assessing ART often consider that the impact such procedures are likely to have on the children they produce and the ways in which they may influence parental-child ties are the most important factors to consider in their regulation.[235, 239] Similarly, a highly praised report of a panel of the New York State Health Department, which recommended increased regulation of ART, placed particular emphasis on the well-being of the children born through this technology.[311]

Once again, a ramification resulting from ART may be reinforcing concurrent social trends. Although the prevailing social welfare norm of family preservation promotes the return of abused and neglected children to their biologic parents, a strong backlash against that ideology is developing among those who place greater weight on children's needs for safety over parental rights.[312, 313] This has culminated in the USA in the passage of the national Adoption and Safe Families Act of 1997 (Public Law 105–89), which mandates shorter time for children to remain in foster care before permanency plans can begin, and enacts incentives for adoption. In both the mental health[314, 315] and the legal arenas,[316, 317, 318] child advocates are challenging the usual presumption that the rights of biologic parents supersede the best interests of children. They propose setting a minimal standard of competent parenting and not violating nurturant, long-standing attachments between child and foster parent attachments solely on the basis of biologic connections that do not consider the child's needs and perspective.

Promotion of the legitimate rights of children should be clearly distinguished from a punitive, judgmental attitude toward prospective biologic parents who are at high risk for endangering their children. Criminal indictment, including jail terms for 'fetal abuse' by substance-abusing pregnant women, is less beneficial to children than court-ordered confinement in public treatment centers that provide drug treatment and prenatal care.[319] When obstetricians are called on or feel compelled to offer counsel in helping their patients make pregnancy planning (*i.e.* parenting) decisions, whether it be questions of birth control, abortion, adoption, or ART, an empathic understanding of the ramifications of those decisions for the woman or couple must be balanced with an awareness of their implications for the potential child-to-be and what the consequent parenting relationship might be like.

REFERENCES

1 Stacey J: Brave New Families. New York: Basic Books, 1991

2 Coontz S: The Way We Never Were. New York: Basic Books, 1992

3 Freud S: The ego and the id (1923). In Strachey J (ed): The Standard Edition of the Complete Psychological Works of Sigmund Freud, pp 123–246. Vol 7. London: Hogarth Press, 1961

4 Freud A: The Ego and the Mechanisms of Defense. New York: International Universities Press, 1936

5 Sulloway F: Freud: Biologist of the Mind. New York: Basic Books, 1979

6 Deutsch H: The Psychology of Women. Vol 2: Motherhood. New York: Grune & Stratton, 1945

7 Benedek T: Toward the biology of the depressive constellation. J Am Psychoanal Assoc 4: 389, 1956

8 Kestenberg J: On the development of maternal feelings in early childhood. Psychoanal Study Child 11: 257, 1956

9 Bibring G, Dwyer T, Huntington D et al: A study of the psychological processes in pregnancy and of the earliest mother-child relationship: 1. Some propositions and comments. Psychoanal Study Child 16: 9, 1961

10 Pines D: Pregnancy and motherhood: Interaction between fantasy and reality. Br J Med Psychol 45: 333, 1972

11 Condon JT: Altered cognitive functioning in pregnant women: A shift towards primary process thinking. Br J Med Psychol 60: 329, 1987

12 Leifer M: Psychological changes accompanying pregnancy and motherhood. Gen Psychol Monogr 95: 55, 1977

13 Colman A: Psychological state during first pregnancy. Am J Orthopsychiatry 39: 788, 1969

14 Meares R, Grimwade J, Bickley M et al: Pregnancy and neuroticism. Med J Aust 1: 517, 1972

15 Raphael-Leff J: Pregnancy: The Inside Story. London: Jason Aronson, 1993

16 Freud S: Some psychical consequences of the anatomical distinction between the sexes (1925). In Strachey J (ed): The Standard Edition of the Complete Psychological Works of Sigmund Freud, pp 243–259. Vol 19. London: Hogarth Press, 1961

17 Money J, Ehrhardt AA: Man and Woman, Boy and Girl. Baltimore: Johns Hopkins University Press, 1972

18 Stoller R: Primary femininity. J Am Psychoanal Assoc 24 (Suppl): 59, 1976

19 Chehrazi S: Female psychology: A review. J Am Psychoanal Assoc 34: 141, 1986

20 Small F: The psychology of women: A psychoanalytic review. Can J Psychiatry 34: 872, 1989

21 Fast I: Gender Identity: A Differentiation Model. Hillsdale, NJ: Analytic Press, 1984

22 Galenson E, Roiphe M: Some suggested revisions concerning early female development. J Am Psychoanal Assoc 24 (Suppl): 24, 1976

23 Greenberg RP, Fisher S: Freud's penis-baby equation: Exploratory tests of a controversial theory. Br J Med Psychol 53: 333, 1980

24 Jones RL: An empirical study of Freud's penis-baby equation. J Nerv Ment Dis 182: 127, 1994

25 Ballou J: The significance of reconciliative themes in the psychology of pregnancy. Bull Menninger Clin 42: 383, 1978

26 Lester E, Notman M: Pregnancy, developmental crisis, and object relations: Psychoanalytic considerations. Int J Psychoanal 67: 357, 1986

27 Bydlowski M: Childbirth customs: A psychoanalytical approach. J Reprod Infant Psychol 9: 35, 1991

28 Brazelton TB, Cramer B: The Earliest Relationship. New York: Addison-Wesley, 1990

29 Winnicott DW: Primary maternal preoccupation (1956). In Through Paediatrics to Psycho-Analysis, pp 300–305. New York: Basic Books, 1958

30 Leon IG: The psychoanalytic conceptualization of perinatal loss: A multidimensional model. Am J Psychiatry 149: 1464, 1992

31 Solnit A, Stark M: Mourning and the birth of the defective child. Psychoanal Study Child 16: 523, 1961

32 Mintzer D, Als H, Tronick E et al: Parenting an infant with a birth defect: The regulation of self-esteem. Psychoanal Study Child 39: 561, 1984

33 Furman E: The death of the newborn: Care of the parents. Birth Fam J 5: 214, 1978

34 Leon IG: When a Baby Dies: Psychotherapy for Pregnancy and Newborn Loss. New Haven: Yale University Press, 1990

35 Downey J, McKinney M: The psychiatric status of women presenting for infertility evaluation. Am J Orthopsychiatry 62: 196, 1992

36 Menning BE: Infertility: A Guide for the Childless Couple. 2nd ed. New York: Prentice-Hall, 1988

37 Griel AL: Not Yet Pregnant: Infertile Couples in Contemporary America. New Brunswick, NJ: Rutgers University Press, 1991

38 Whiteford LM, Gonzalez L: Stigma: The hidden burden of infertility. Soc Sci Med 40: 27, 1995

39 Cecil R (ed): The Anthropology of Pregnancy Loss. Oxford: Berg, 1996

40 Ireland MS: Reconceiving Women: Separating Motherhood from Female Identity. New York: Guilford, 1993

41 Tobin POZ, Aria B: Motherhood Optional. Northvale, NJ: Jason Aronson, 1998

42 Bowlby J: Maternal Care and Mental Health (1952). Northvale, NJ: Jason Aronson, 1995

43 Hrdy SB: Mother Nature / A History of Mothers, Infants, and Natural Selection. New York: Pantheon 1999

44 Kelley DB: Sexually dimorphic behaviors. Ann Rev Neurosci 11: 225, 1988

45 Rosenblatt JS, Mayer AD, Giordano AL: Hormonal basis during pregnancy for the onset of maternal behavior in the rat. Psychoneuroendocrinology 13: 29, 1988

46 Kinsley CH: Developmental psychobiological influences on rodent parental behavior. Neurosci Biobehav Rev 18: 269, 1994

47 Keverne EB, Levy F, Poindron P et al: Vaginal stimulation: An important determinant of maternal bonding in sheep. Science 219: 81, 1983

48 Kendrick KM, Levy F, Keverne EB: Importance of vaginocervical stimulation for the formation of maternal bonding in primiparous and multiparous parturient ewes. Physiol Behav 50: 595, 1991

49 Abitbol ML, Inglis SR: Role of amniotic fluid in newborn acceptance and bonding in canines. J Matern Fetal Med 6: 49, 1997

50 Brunton PJ, Russell JA: The expectant brain: Adapting for motherhood. Nature Rev 9: 11, 2008

51 Insel TR, Young LJ: The neurobiology of attachment. Nature Rev 2: 129, 2001

52 Swain JE, Lorberbaum JP, Kose S et al: Brain basis of early parent-infant interactions: Psychology, physiology, and in vivo functional neuroimaging studies. J Child Psychol Psychiatr 48: 262, 2007

53 Trause MA, Klaus MH, Kennell JH: Maternal behavior in mammals. In Klaus MH, Kennell JH: Parent-Infant Bonding, pp 130–150. 2nd ed. St. Louis: CV Mosby, 1982

54 Robinson GE, Stewart DE: Motivation for motherhood and the experience of pregnancy. Can J Psychiatr 34: 861, 1989

55 Small ME: Our Babies, Ourselves: How Biology and Culture Shape the Way We Parent. New York: Anchor Books, 1998

56 Greenberg M, Morris N: Engrossment: The newborn's impact upon the father. Am J Orthopsychiatr 44: 520, 1974

57 Frodi AM, Lamb ME: Sex differences and responsiveness to infants. Child Dev 49: 1182, 1978

58 Pruett KD: Infants of primary nurturing fathers. Psychoanal Study Child 38: 257, 1983

59 Lamb ME: The development of father-infant relationships. In Lamb ME (ed): The Role of the Father in Child Development, pp 104–120. 3rd ed. New York: Wiley, 1997

60 Feldman SS, Nash SC: Interest in babies during adulthood. Child Dev 49: 617, 1978

61 Blos P: On Adolescence. New York: Free Press, 1962

62 Benedek T: Parenthood as a developmental phase. J Am Psychoanal Assoc 7: 389, 1959

63 Parens H (reporter): Parenthood as a developmental phase [Panel]. J Am Psychoanal Assoc 23: 154, 1975

64 Schwartz DD: Psychoanalytic developmental perspectives on parenthood. In Cohen RS, Cohler BJ, Weissman SH (eds): Parenthood: A Psychodynamic Perspective, pp 356–372. New York: Guilford, 1984

65 Colarusso CC: The third individuation: The effect of biological parenthood on separation-individuation processes in adulthood. Psychoanal Study Child 45: 179, 1990

66 Erikson E: Childhood and Society. 2nd ed. New York: Norton, 1963

67 Lewis M, Rosenblum L (eds): The Effect of the Infant on His Caregiver. New York:

Wiley, 1974.

68 Cox M: Progress and continued challenges in understanding the transition to parenthood. J Fam Issues 6: 395, 1985

69 Cowan CP, Cowan PA, Heming G et al: Transition to parenthood: His, hers and theirs. J Fam Issues 6: 451, 1985

70 Cowan CP, Cowan PA: When Partners Become Parents. New York: Basic Books, 1992

71 Grossman F, Eichler L, Winickoff S et al: Pregnancy, Birth, and Parenthood. San Francisco: Jossey-Bass, 1980

72 Belsky J, Lang ME, Rovine M: Stability and change in marriage across the transition to parenthood: A second study. J Marriage Fam 47: 855, 1985

73 Cowan CP, Cowan PA: Men's involvement in parenthood: Identifying the antecedents and understanding the barriers. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 145–174. Hillsdale, NJ: Lawrence Earlbaum, 1987

74 Bouchard, G: Adult couples facing a planned or an unplanned pregnancy: Two realities. J Fam Issues 26: 619, 2005

75 Bouchard G, Boudreau J, Hebert R: Transition to parenthood and conjugal life: Comparisons between planned and unplanned pregnancies. J Fam Issues 27: 1512, 2006

76 Cox MJ, Paley B, Burchinal M et al: Marital perceptions and interactions across transition to parenthood. J Marriage Fam 61: 611, 1999

77 Lawrence E, Cobb CJ, Rothman AD et al: Marital satisfaction across the transition to parenthood. J Fam Psychol 22: 41, 2008

78 Feldman SS: Predicting strain in mothers and fathers of 6-month-old infants: A short-term longitudinal study. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 13–35. Hillsdale, NJ: Lawrence Earlbaum, 1987

79 Roe KV, Drivas A: Planned conception and infant functioning at age three months: A cross-cultural study. Am J Orthopsychiatr 63: 120, 1993

80 Williams TM, Joy LA, Travis L et al: Transition to motherhood: A longitudinal study. Infant Ment Health J 8: 251, 1987

81 Benson PL, Sharma AR, Roehlkepartain EC: Growing Up Adopted. Minneapolis: Search Institute, 1994

82 Sharma A, McGue M, Benson P: The psychological adjustment of United States adopted adolescents and their nonadopted siblings. Child Dev 69: 791, 1998

83 Nachtigall RD: Secrecy: An unresolved issue in the practice of donor insemination. Am J Obstet Gynecol 168: 1846, 1993

84 Harwood K, McLean N, Durkin K: First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by experiences? Develop Psychol 43: 1, 2007.

85 Lawrence E, Nylen K, Cobb R: Prenatal expectations and marital satisfaction over the transition to parenthood. J Fam Psychol 21: 155, 2007

86 Matejcek Z: Follow-up study of children born to women denied abortion. Ciba Found Symp 115: 136, 1985

87 David HP, Dytrych Z, Matejcek Z et al (eds): Born Unwanted. New York: Springer, 1988

88 Bohman M, Sigvardsson S: Outcome in adoption: Lessons from longitudinal studies. In Brodzinsky DM, Schechter MD (eds): The Psychology of Adoption, pp 93–106. New York: Oxford University Press, 1990

89 Dickie JR: Interrelationships within the mother-father-infant triad. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 113–143. Hillsdale, NJ: Lawrence Earlbaum, 1987

90 Ruble DN, Fleming AS, Hackel LS et al: Changes in the marital relationship during the transition to first time motherhood: Effects of violated expectations concerning division of household labor. J Pers Soc Psychol 55: 78, 1988

91 Osofsky HJ, Culp RE: Risk factors in the transition to fatherhood. In Cath SH, Gurwitt, A, Gunsberg L (eds): Fathers and Their Families, pp 145–165. Hillsdale, NJ: Analytic Press, 1989

92 Belsky J, Kelly J: The Transition to Parenthood. New York: Dell, 1994

93 Shapiro AF, Gottman JM, Carriere S: The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the frist baby arrives. J Fam Psychol 14: 59, 2000

94 Rholes WS, Simpson JA, Campbell L, et al: Adult attachment and the transition to parenthood. J Pers Soc Psychol 81: 421, 2001

95 Paley B, Cox MJ, Kanoy KW, et al: Adult attachment and marital interaction as predictors of whole family interactions during the transition to parenthood. J Fam Psychol 19: 420, 2005

96 Curran M, Hazen N, Jacobvitz D et al: Representations of early family relationships predict marital maintenance during the transition to parenthood. J Fam Psychol 19: 189, 2005

97 Curran M, Hazen N, Jacobvitz D, et al: How representations of the parental marriage predict marital emotional attunement during the transition to parenthood. J Fam Psychol 20: 477, 2006

98 Nelson, AM: Transition to motherhood. J Ob Gyn Neonat Nurs 32: 465, 2003

99 Schulz MS, Cowan CP, Cowan PA: Promoting healthy beginnings: A randomized controlled trial of a preventive intervention to preserve marital quality during the transition to parenthood. J Consult Clin Psychol 74: 20, 2006

100 Cowan P: Being partners: Effects on parenting and child development. In Clulow C (ed): Partners Becoming Parents, pp 140–158. Northvale, NJ: Jason Aronson, 1996

101 Gurwitt A: Flight from fatherhood. In Cath SH, Gurwitt A, Gunsberg L (eds): Fathers and Their Families, pp 167–188. Hillsdale, NJ: Analytic Press, 1989

102 Gurwitt A: Aspects of prospective fatherhood: A case report. Psychoanal Study Child 31: 237, 1976

103 Ross JM: The development of paternal identity: A critical review of the literature on nurturance and generativity in boys and men. J Am Psychoanal Assoc 23: 783, 1975

104 Loewald H: Ego and reality. Int J Psychoanal 32: 10, 1951

105 Trethowan WH: The couvade syndrome. In Howells JG (ed): Modern Perspectives in Psycho-Obstetrics, pp 68–93. New York: Brunner/Mazel, 1972

106 Yogman MW: Male parental behavior in human and nonhuman primates. In Krasnegor NA, Bridges RS (eds): Mammalian Parenting, pp 461–481. Oxford: Oxford University Press, 1990

107 Clinton, JF: Expectant fathers at risk for couvade. Nurs Res 35: 290, 1986

108 Peppers L, Knapp R: Motherhood and Mourning: Perinatal Death. New York: Prager, 1980

109 Weaver RH, Cranley M: An exploration of paternal-fetal attachment. Nurs Res 32: 68, 1983

110 Condon J: The parental-foetal relationship: A comparison of male and female expectant parents. J Psychosom Obstet Gynaecol 4: 271, 1985

111 Gerson MJ: Tomorrow's Fathers: The anticipation of fatherhood. In Cath SH, Gurwitt A, Gunsberg L (eds): Fathers and Their Families, pp 127–143. Hillsdale, NJ: Analytic Press, 1989

112 Goldberg WA, Michaels GY, Lamb ME: Husbands' and wives' adjustment to pregnancy and first parenthood. J Fam Issues 6: 483, 1985

113 Pedersen FA: Introduction: A perspective on research concerning fatherhood. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 1–12. Hillsdale, NJ: Lawrence Earlbaum, 1987

114 Russell G: The father role and its relation to masculinity, femininity, and androgyny. Child Dev 49: 1174, 1978

115 Palkovitz R: Parental attitudes and fathers' interactions with their 5-month-old infants. Dev Psychol 20: 1054, 1984

116 Pleck JH: Paternal involvement: Levels, sources, and consequences. In Lamb ME (ed): The Role of the Father in Child Development, pp 66–103. 3rd ed. New York: Wiley, 1997

117 Chodorow N: The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender. Berkeley: The University of California Press, 1978

118 Gilligan C: In A Different Voice. Cambridge, MA: Harvard University Press, 1982

119 Grossman FK: Separate and together: Men's autonomy and affiliation in the transition to parenthood. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 89–112. Hillsdale, NJ: Lawrence Earlbaum, 1987

120 Radin N: Primary caregiving fathers in intact families. In Gottfried AE, Gottfried AW (eds): Redefining Families: Implications for Children's Development, pp 11–54. New York: Plenum, 1994

121 Lamb ME: Fathers and child development: An introductory overview and guide. In Lamb ME (ed): The Role of the Father in Child Development, pp 1–18. 3rd ed. New York: Wiley, 1997

122 Blankenhorn D: Fatherless America. New York: Basic Books, 1995

123 Popenoe D: Life Without Father. New York: Free Press, 1996

124 Heinicke CM, Guthrie D: Stability and change in husband-wife adaptation and the development of the positive parent-child relationship. Infant Behav Dev 15: 109, 1992

125 Pedersen FA, Zaslow MJ, Cain RL et al: Father-infant interaction among men who had constrasting affective responses during early infancy: Follow-up observations at 1 year. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 65–87. Hillsdale, NJ: Lawrence Earlbaum, 1987

126 Risholm MP: Maternal adjustment during pregnancy and the infant's first year. Scand J Psychol 33: 20, 1992

127 Bost, KK, Cox, MJ, Burchinal, MR et al: Structural and supportive changes in couples' family and friendship networks across the transition to parenthood. J Marriage Fam 62: 517, 2002

128 Belsky J, Isabella RA: Marital and parent-child relationships in family of origin and marital change following the birth of a child: A retrospective analysis. Child Dev 56: 342, 1985

129 Ainsworth MDS, Blehar MC, Waters E et al: Patterns of Attachment. Hillsdale, NJ: Lawrence Earlbaum, 1978

130 Cranley M: Development of a tool for the measurement of maternal attachment during pregnancy. Nurs Res 30: 281, 1981

131 Richardson P: Women's perceptions of change in relationships shared with their husbands during pregnancy. Matern Child Nurs J 12: 1, 1983

132 Condon JT, Corkindale C: The correlates of antenatal attachment in pregnant women. Br J Med Psychol 70: 359, 1997

133 Berman PW, Pedersen FA: Research on men's transitions to parenthood: An integrative discussion. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 217–242. Hillsdale, NJ: Lawrence Earlbaum, 1987

134 Belsky J, Volling BL: Mothering, fathering, and marital interaction in the family triad during infancy: Exploring family system's processes. In Berman PW, Pedersen FA (eds): Men's Transitions to Parenthood, pp 37–63. Hillsdale, NJ: Lawrence Earlbaum, 1987

135 Isabella RA, Belsky J: Marital change during the transition to parenthood and the security of infant-parent attachment. J Fam Issues 6: 505, 1985

136 Doering SG, Entwisle DR, Quinlan D: Modeling the quality of women's birth experience. J Health Soc Behav 21: 12, 1980

137 Smilkstein G, Helsper-Lucas A, Ashworth C et al: Prediction of pregnancy complications: An application of the biopsychosocial model. Soc Sci Med 18: 315,

1984

138 Levin JS, DeFrank RS: Maternal stress and pregnancy outcomes: A review of the psychosocial literature. J Psychosom Obstet Gynaecol 9: 3, 1988

139 Pritchard CW, Teo PY: Preterm birth, low birthweight and the stressfulness of the household role for pregnant women. Soc Sci Med 38: 89, 1994

140 Sosa R, Kennell J, Klaus M et al: The effect of a supportive companion on perinatal problems, length of labor, and mother-infant interaction. N Engl J Med 303: 597, 1980

141 Klaus MH, Kennell JH, Robertson SS: Effects of social support during parturition on maternal and infant morbidity. Br Med J 293: 585, 1986

142 Lindner R: A psychosomatic approach to prevent premature births. Paper presented at the 12th International Congress of the International Society of Psychosomatic Obstetrics and Gynecology, June 23, 1998, Washington, DC

143 Rauchfuss M, Trautmann K, Bisson S: Quality of partner relationship and pregnancy outcome. Paper presented at the 12th International Congress of the International Society of Psychosomatic Obstetrics and Gynecology, June 23, 1998, Washington, DC

144 Stemp PS, Turner RJ, Noh S: Psychological distress in the postpartum period: The significance of social support. J Marriage Fam 48: 271, 1986

145 Swanson-Kauffman K: Caring in the instance of unexpected early pregnancy loss. Top Clin Nurs 8: 37, 1986

146 Stern D: The Motherhood Constellation. New York: Basic Books, 1995

147 Jeffery P, Jeffery R: Delayed periods and falling babies: The ethnophysiology and politics of pregnancy loss in rural north India. In Cecil R (ed): The Anthropology of Pregnancy Loss, pp 17–37. Oxford: Berg, 1996

148 Wembah-Rashid JAR: Explaining pregnancy loss in matrilineal southeast Tanzania. In Cecil R (ed): The Anthropology of Pregnancy Loss, pp 75–93. Oxford: Berg, 1996

149 Savage OMN: “Children of the rope” and other aspects of pregnancy loss in Cameroon. In Cecil R (ed): The Anthropology of Pregnancy Loss, pp 95–109. Oxford: Berg, 1996

150 Harkness S, Super CM (eds): Parents' Cultural Belief Systems: Their Origins, Expressions, and Consequences. New York: Guilford Press, 1996

151 Gottlieb B: The Family in the Western World. New York: Oxford University Press, 1993

152 Cecil R: Memories of pregnancy loss: Recollections of elderly women in northern Ireland. In Cecil R (ed): The Anthropology of Pregnancy Loss, pp 179–196. Oxford: Berg, 1996

153 Zeanah C: Adaptation following perinatal loss: A critical review. J Am Acad Child Adolesc Psychiatr 28: 467, 1989

154 Mason MA: From Father's Property to Children's Rights: The History of Child Custody in the United States. New York: Columbia University Press, 1994

155 Zelizer VA: Pricing the Priceless Child: The Changing Social Value of Children. New York: Basic Books, 1985

156 Chira S: A Mother's Place. New York: HarperCollins, 1998

157 Youcha G: Minding the Children: Child Care in America from Colonial Times to the Present. New York: Scribner, 1995

158 Demos J: The changing faces of fatherhood: A new exploration in American family history. In Cath SH, Gurwitt AR, Ross JM (eds): Father and Child: Developmental and Clinical Perspectives, pp 425–445. New York: Basil Blackwell, 1982

159 Griswold RL: Fatherhood in America. New York: Basic Books, 1993

160 Pleck EH, Pleck JH: Fatherhood ideals in the United States: Historical dimensions. In Lamb ME (ed): The Role of the Father in Child Development, pp 33–48. 3rd ed. New York: Wiley, 1997

161 Klaus MH, Kennell JH: Maternal-Infant Bonding. St. Louis: CV Mosby, 1976

162 Klaus MH, Kennell JH: Parent-Infant Bonding, 2nd ed. St. Louis: CV Mosby, 1982

163 Svejda MJ, Campos JJ, Emde RN: Mother-infant “bonding”: Failure to generalize. Child Dev 51: 775, 1980

164 Chess S, Thomas A: Infant bonding: Mystique and reality. Am J Orthopsychiatr 52: 213, 1982

165 Herbert M, Sluckin W, Sluckin A: Mother-infant “bonding.” J Child Psychol Psychiatr 23: 205, 1982

166 Lamb ME: Early contact and maternal-infant bonding: One decade later. Pediatr 70: 763, 1982

167 Myers BJ: Mother-infant bonding: The status of the critical period hypothesis. Dev Rev 4: 240, 1984

168 Eyer DE: Mother-Infant Bonding: A Scientific Fiction. New Haven, CT: Yale University Press, 1992

169 Grossman ER: The parent-infant bonding controversy: A critique of the critics. Dev Behav Pediatr 15: 379, 1994

170 Klaus M, Kennell J: Parent to infant bonding: Setting the record straight. J Pediatr 102: 575, 1983

171 Lumley J: Attitudes to the fetus among primigravidae. Aust Paediatr J 18: 106, 1982

172 Mertin PG: Maternal-infant attachment: A developmental perspective. Aust N Z J Obstet Gynaecol 26: 280, 1986

173 Bronfenbrenner U: The Ecology of Human Development. Cambridge, MA: Harvard University Press, 1979

174 Goldstein J, Freud A, Solnit AJ: Beyond the Best Interests of the Child. 2nd ed. New York: Free Press, 1979

175 Bowlby J: Attachment and Loss: Attachment. Vol 1. New York: Basic Books, 1969

176 Karen R: Becoming Attached. New York: Warner Books, 1994

177 Bowlby J: Caring for the young: Influences on development. In Cohen RS, Cohler BJ, Weissman SH (eds): Parenthood: A Psychodynamic Perspective, pp 269–284. New York: Guilford Press, 1984

178 Lumley J: The image of the fetus in the first trimester. Birth Fam J 7: 5, 1980

179 Lerum CW, LoBiondo-Wood G: The relationship of maternal age, quickening, and physical symptoms of pregnancy to the development of maternal-fetal attachment. Birth 16: 13, 1989

180 Zachariah R: Maternal-fetal attachment: Influence of mother-daughter and husband-wife relationships. Res Nurs Health 17: 37, 1994

181 Toedter LJ, Lasker JN, Alhadeff JM: The perinatal grief scale: Development and initial validation. Am J Orthopsychiatr 58: 435, 1988

182 Theut SK, Pedersen FA, Zaslow MJ et al: Perinatal loss and parental bereavement. Am J Psychiatr 146: 635, 1989

183 Fletcher JC, Evans MI: Maternal bonding in early fetal ultrasound examinations. N Engl J Med 308: 392, 1983

184 Langer M, Ringler M, Reinold E: Psychological effects of ultrasound examinations: Changes of body perception and child image in pregnancy. J Psychosom Obstet Gynaecol 8: 199, 1988

185 Kolata G: Miniature scope gives the earliest pictures of a developing embryo. New York Times July 6, 1993, B6

186 Blumenthal SJ: Psychiatric consequences of abortion: Overview of research findings. In Stotland NL (ed): Psychiatric Aspects of Abortion, pp 17–37. Washington, DC: American Psychiatric Press, 1991

187 Dagg PKB: The psychological sequelae of therapeutic abortion—denied and completed. Am J Psychiatr 148: 578, 1991

188 Beutel M, Deckardt R, von Rad M et al: Grief and depression after miscarriage: Their separation, antecedents and course. Psychosom Med 57: 517, 1995

189 Neugebauer R, Kline J, Shrout P et al: Major depressive disorder in the 6 months after miscarriage. JAMA 277: 383, 1997

190 Hanafin H: Surrogate parenting: Reassessing human bonding. Paper presented at American Psychological Association, August 28, 1987, New York

191 Fischer S, Gillman I: Surrogate motherhood: Attachment, attitudes, and social support. Psychiatr 54: 13, 1991

192 McLaughlin SD, Pearce SD, Manninen DL et al: To parent or relinquish: Consequences for adolescent mothers. Soc Work 33: 320, 1988

193 Cushman LF, Kalmuss K, Namerow PB: Placing an infant for adoption: The experience of young birthmothers. Soc Work 38: 264, 1993

194 Rynearson E: Relinquishment and its maternal complications: A preliminary study. Am J Psychiatr 139: 338, 1982.

195 Deykin E, Campbell L, Patti P: The postadoptive experience of surrendering parents. Am J Orthopsychiatr 54: 271, 1984

196 Muller ME: Prenatal and postnatal attachment: A modest correlation. J Obstet Gynecol Neonatal Nurs 25: 161, 1996

197 Sandelowski M, Black BP: The epistemology of expectant parenthood. West J Nurs Res 16: 601, 1994

198 Stainton MC: Parents' awareness of their unborn infant in the third trimester. Birth 17: 92, 1990

199 Zeanah CH, Keener MA, Stewart L et al: Prenatal perception of infant personality: A preliminary investigation. J Am Acad Child Psychiatr 24: 204, 1985

200 Zeanah CH, Keener MA, Anders TF: Developing perceptions of temperament and their relation to mother and infant behavior. J Child Psychol Psychiatr 27: 499, 1986

201 Knapp RJ: Beyond Endurance: When a Child Dies. New York: Schocken Books, 1986

202 Rando TA (ed): Parental Loss of a Child. Champaign, IL: Research Press, 1986

203 Cain A, Cain B: On replacing a child. J Am Acad Child Psychiatr 3: 443, 1964

204 Fonagy P, Steele H, Steele M: Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. Child Dev 62: 891, 1991

205 Benoit D, Parker KCH: Stability and transmission of attachment across three generations. Child Dev 65: 1444, 1994

206 Hesse E: The adult attachment interview: Historical and current perspectives. In Cassidy J, Shaver PR (eds.): Handbook of Attachment / Theory, Research, and Clinical Applications, pp 395-433. New York: Guilford, 1999

207 Benoit D, Parker KCH, Zeanah CH: Mothers' representations of their infants assessed prenatally: Stability and association with infants' attachment classifications. J Child Psychol Psychiatr 38: 307, 1997

208 Fonagy P, Steele M, Steele H et al: The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. Infant Ment Health J 12: 201, 1991

209 Fraiberg S, Adelson E, Shapiro V: Ghosts in the nursery: A psychoanalytic approach to the problems of impaired infant-mother relationships. In Fraiberg S (ed): Clinical Studies in Infant Mental Health: The First Year of Life, pp 164–196. New York: Basic Books, 1980

210 Fonagy P, Steele M, Moran G et al: Measuring the ghosts in the nursery: An empirical study of the relation between parents' mental representations of childhood experiences and their infants' security of attachment. J Am Psychoanal Assoc 41: 957, 1993

211 Dawkins R: The Selfish Gene. 2nd ed. Oxford: Oxford University Press, 1989

212 Wilson EO: Sociobiology: The Abridged Edition. Cambridge, MA: Harvard University Press, 1980

213 Bell RW, Bell NJ (eds): Sociobiology and the Social Sciences. Lubbock, TX: Texas Tech University Press, 1989

214 Pinker S: How the Mind Works. New York: Norton, 1997

215 Wilson EO: Consilience: The Unity of Knowledge. New York: Knopf, 1998

216 Daly M: Parent-offspring conflict and violence in evolutionary perspective. In Bell RW, Bell NJ (eds): Sociobiology and the Social Sciences, pp 25–43. Lubbock, TX: Texas Tech University Press, 1989

217 Gilby RL, Pedersen DR: The development of the child's concept of the family. Can J Biobehav Sci 14: 110, 1982

218 Singer LM, Brodzinsky DM, Ramsey D et al: Mother-infant attachment in adoptive families. Child Dev 56: 1543, 1985

219 Brodzinsky DM: Long-term outcomes in adoption. In Behrman RE (ed): The Future of Children: Adoption, pp 153–166. Vol 3, no 1. Los Angeles: David and Lucile Packard Foundation, 1993

220 Golombok S, Cook R, Bish A et al: Families created by the new reproductive technologies: Quality of parenting and social and emotional development of the children. Child Dev 66: 285, 1995

221 Zeanah CH, Dailey J, Rosenblatt M et al: Do women grieve after terminating pregnancies because of fetal anomalies? A controlled investigation. Obstet Gynecol 82: 270, 1993

222 Specter M: Population implosion worries a graying Europe. New York Times July 10, 1998, A1

223 Smith A: Psychiatric aspects of sterilization: A prospective survey. Br J Psychiatr 135: 304, 1979

224 Cooper P, Gath D, Rose N et al: Psychological sequelae to elective sterilisation: A prospective survey. Br Med J 284: 461, 1982

225 Cooper JE, Bledin K, Brice B et al: Effects of female sterilization: One year follow-up in a prospective controlled study of psychological and psychiatric outcome. Psychosom Res 29: 13, 1985

226 Eyers D: Motherguilt: How Our Culture Blames Mothers for What's Wrong with Society. New York: Random House, 1996

227 Levi-Strauss C: Structural Anthropology. New York: Basic Books, 1967

228 Schneider DM: American Kinship: A Cultural Account. Chicago: University of Chicago Press, 1968

229 Yanagisako SJ, Collier JF: Toward a unified analysis of gender and kinship. In Collier JF, Yanagisako SJ (eds): Gender and Kinship: Essays Toward a Unified Analysis, pp 14–50. Stanford, CA: Stanford University Press, 1987

230 Strathern M: The meanings of assisted kinship. In Stacey M (ed): Changing Human Reproduction, pp 148–169. London: Sage, 1992

231 Holy L: Anthropological Perspectives on Kinship. London: Pluto Press, 1996

232 Rossi AS: Gender and parenthood. Am Soc Rev 49: 1, 1984

233 Heyd D: Genethics: Moral Issues in the Creation of People. Berkeley: University of California Press, 1992

234 Alpern KD (ed): The Ethics of Reproductive Technology. New York: Oxford University Press, 1992

235 Lauritzen P: Pursuing Parenthood: Ethical Issues in Assisted Reproduction. Bloomington, IN: Indiana University Press, 1993

236 Offerman-Zuckerberg J (ed): Gender in Transition: A New Frontier. New York: Plenum, 1989

237 Stotland NL (ed): Psychiatric Aspects of Reproductive Technology. Washington, DC: American Psychiatric Press, 1990

238 DeMarco D: Biotechnology and the Assault on Parenthood. San Francisco: Ignatius Press, 1991

239 Peters T: For the Love of Children: Genetic Technology and the Future of the

Family. Louisville, KY: Westminster John Knox Press, 1996

240 Dolgin JL: Defining the Family: Law, Technology, and Reproduction in an Uneasy Age. New York: New York University Press, 1997

241 Inhorn MC: Local Babies, Global Science / Gender, Religion, and In Vitro Fertilization in Egypt. New York: Routledge, 2003

242 Kahn SM: Reproducing Jews / A Cultural Account of Assisted Conception in Israel. Durham, NC: Duke University Press, 2000

243 Inhorn MC, van Balen F (eds.): Infertility Around the Globe / New Thinking on Childlessness, Gender, and Reproductive Technologies. Berkeley, CA: University of California Press, 2002

244 Baruch EH, D'Adamo AF, Seager J (eds): Embryos, Ethics, and Women's Rights: Exploring the New Reproductive Technologies. New York: Harrington Park Press, 1988

245 Callahan JC: Reproduction, Ethics, and the Law: Feminist Perspectives. Bloomington, IN: Indiana University Press, 1995

246 Mamo L: Queering Reproduction / Achieving Pregnancy in the Age of Technoscience. Durham, NC: Duke University Press, 2007

247 Becker G: The Elusive Embryo / How Women and Men Approach New Reproductive Technologies. Berkeley, CA: University of California Press 2000

248 Spar DS: The Baby Business / How Money, Science, and Politics Drive the Commerce of Conception. Boston: Harvard Business School Press 2006.

249 Vatican: Instruction on respect for human life in its origin and on the dignity of procreation (1987). In Alpern KD (ed): The Ethics of Reproductive Technology, pp 83–97. New York: Oxford University Press, 1992

250 Pence GE: Who's Afraid of Human Cloning? Lanham, MD: Rowman & Littlefield, 1998

251 Robertson JA: Children of Choice: Freedom and the New Reproductive Technologies. Princeton, NJ: Princeton University Press, 1994

252 Schmukler I, Aigen BP: The terror of surrogate motherhood: Fantasies, realities, and viable legislation. In Offerman-Zuckerberg J (ed): Gender in Transition, pp 235–248. New York: Plenum 1989

253 Kovacs GT, Mushin D, Kane H et al: A controlled study of the psycho-social development of children conceived following insemination with donor semen. Hum Reprod 8: 788, 1993

254 Brewaeys A: Donor insemination, the impact on family and child development. J Psychosom Obstet Gynecol 17: 1, 1996

255 Golombok S, Brewaeys A, Cook R et al: The European study of assisted reproduction families: Family functioning and child development. Hum Reprod 11: 101, 1996

256 Hahn C-S, DiPietro JA: In vitro fertilization and the family: Quality of parenting, family functioning, and child psychosocial adjustment. Dev Psychol 37: 37,2001

257 Weaver SM, Clifford E, Gordon AG, et al: A follow-up study of 'successful' IVF/GIFT couples: Social-emotional well-being and adjustment to parenthood. J Psychsom Obstet Gynaecol 14: 5, 1993

258 van Balen F: Child-rearing following in vitro fertilization. J Child Psychol Psychiatr 37:687, 1996

259 Golombok S, Brewaeys A., Giavazzi MT, et al: The European study of assisted reproductive families: The transition to adolescence. Hum Repro 17: 830, 2002.

260 Golombok S, MacCallum F, Goodman E: The "test-tube" generation: Parent-child relationships and the psychological well-being of in vitro fertilization children at adolescence. Child Dev 72: 599, 2001

261 McMahon CA, Ungerer JA, Beaurepaire J, et al: Anxiety during pregnancy and fetal attachment after in-vitro conception. Hum Reprod 12: 176, 1997

262 Bertrand-Servais M, Letur-Konirsch H, Raoul-Duval A et al: Psychological considerations of anonymous oocyte donation. Hum Reprod 8: 874, 1993

263 Daniels K: The controversy regarding privacy versus disclosure among patients using donor gametes in assisted reproductive technology. J Assoc Reprod Genet 14: 373, 1997

264 Daniels K: Donor gametes: Anonymous or identified. Best Pract Res Clin Obstet Gynaec 21: 113, 2007

265 Mahlstedt PP: Psychological issues of infertility and assisted reproductive technology. Urol Clin North Am 21: 557, 1994

266 Shenfield F: Privacy versus disclosure in gamete donation: A clash of interest, of duties, or an exercise in responsibility? J Assoc Reprod Genetics 14: 371, 1997

267 Baran A, Pannor R: Lethal Secrets: The Shocking Consequences and Unsolved Problems of Artificial Insemination. New York: Warner Books, 1989

268 Cook R, Golombok S, Bish A et al: Disclosure of donor insemination: Parental attitudes. Am J Orthopsychiatr 65: 549, 1995

269 Ethics Committee of the American Society for Reproductive Medicine: Informing offspring of their conception by gamete donation. Fertility and Sterility 82 (Suppl. 1): S212, 2004

270 Golombok S: Parenting and secrecy issues related to children of assisted reproduction. J Assoc Reprod Genetics 14: 375, 1997

271 McGee G, Brakman SV, Gurmankin AD: Gamete donation and anonymity: Disclosure to children conceived with donor gametes should not be optional. Hum Reprod 16: 2033, 2001

272 Turner AJ, Coyle A: What does it mean to be a donor offspring? THe identity experience of adults conceived by donor insemination and the implications for counselling and therapy. Hum Reprod 15: 2041, 2000

273 Klock SC: The controversy surrounding privacy or disclosure among donor gamete recipients. J Assoc Reprod Genetics 14: 378, 1997

274 Nachtigall RD, Tschann JM, Quiroga SS et al: Stigma, disclosure, and family functioning among parents of children conceived through donor insemination. Fertility and Sterility 68: 83, 1997

275 Patrizio P, Mastroianni AC, Mastroianni L: Disclosure to children conceived with donor gametes should be optional. Hum Reprod 16: 2036, 2001

276 Adair V: Telling the story: Parents' scripts for donor offspring. Hum Reprod 14: 1392, 1999

277 Mac Dougall K, Becker G, Scheib JE et al: Strategies for disclosure: How parents approach telling their children that they were conceived with donor gametes. Fertility and Sterility 87: 524, 2007

278 Shehab D, Duff J, Pasch LA et al: How parents whose children have been conceived with donor gametes make their disclosure decision: Contexts, influences and couple dynamics. Fertility and Sterility 89: 179, 2008

279 Daniels K: Is blood really thicker than water? Assisted reproduction and its impact on our thinking about family. J Psychosom Obs Gynaecol 26: 265, 2005

280 Kirk HD: Shared fate: A theory and method of adoptive relationships (2nd ed). Port Angeles, WA: Ben-Simon Publications, 1984.

281 Weil E, Cornet D, Sibony C et al: Psychological aspects in anonymous and non-anonymous oocyte donation. Hum Reprod 9: 1344, 1994

282 Murray C, MacCallum F, Golombok S: Egg donation parents and their children: Follow-up at age 12 years. Fertility and Sterility 85: 610, 2006

283 Lycett E, Daniels KR, Curson R et al: Offspring created as a result of donor insemination: A study of family relationships, child adjustment, and disclosure. Fertility and Sterility 82: 172, 2004

284 Diamond R, Kezur D, Meyers M et al: Couple Therapy for Infertility. New York: Guilford, 1999

285 Howard, A. Heigton R, Jordan C et al: Traditional and modern adoption patterns in Hawaii. In Carroll V (ed): Adoption in Eastern Oceania, pp. 21-51. Honolulu: University of Hawaii Press, 1970

286 Pomponio A: Seagulls don't fly into the bush: Cultural identity and the negotiation of development on Mankok island, Papua New Guinea. In Linnekin J, Porter L (eds): Cultural Identity and Ethnicity in the Pacific, pp 43-69. Honolulu: University of Hawaii Press, 1990

287 Horner T, Rosenberg E: The family romance: A developmental-historical perspective. Psychoanal Psychol 8: 131, 1991

288 Boswell J: The Kindness of Strangers: The Abandonment of Children in Western Europe from Late Antiquity to the Renaissance. New York: Pantheon, 1988

289 Rappaport BM: The Open Adoption Book. New York: Macmillan, 1992

290 Berry M: Risks and benefits of open adoption. In Behrman RE (ed): The Future of Children: Adoption, pp 125–138. Vol 3, no 1. Los Angeles: David and Lucile Packard Foundation, 1993

291 Melina LR, Roszia SK: The Open Adoption Experience. New York: HarperPerennial, 1993

292 Grotevant HD, McRoy RG: Openness in Adoption. Thousand Oaks, CA: Sage Publications, 1998

293 Sontag D, Dugger DW: The new immigrant tide: A shuttle between worlds. New York Times July 19, 1998, A1

294 Stewart DE, Robinson GE: Infertility by choice or nature. Can J Psychiatr 34: 866, 1989

295 Bonnicksen AL: In Vitro Fertilization. New York: Columbia University Press, 1989

296 Kolata G: Pushing the boundaries of reproductive biology. New York Times July 24, 1998, A10

297 Ahern S, Bailey KG: Family by Choice: Creating Family in a World of Strangers. Minneapolis: Fairview Press, 1996

298 Stacey J: In the Name of Family: Rethinking Family Values in the Postmodern Age. Boston: Beacon Press, 1996

299 Jansen RPS: Reproductive medicine and the social state of childlessness. Med J Aust 167: 321, 1997

300 Pearn JH: Gatekeeping and assisted reproductive technology. Med J Aust 167: 318, 1997

301 Falk PJ: Lesbian mothers: Psychosocial assumptions in family law. Am Psychol 44: 941, 1989

302 Patterson CJ: Children of lesbian and gay parents. Child Dev 63: 1025, 1992

303 Tasker F, Golombok S: Adults raised as children in lesbian families. Am J Orthopsychiatr 65: 203, 1995

304 Brewaeys A, Ponjaert I, Van Hall E et al: Donor insemination: Child development and family functioning in lesbian mother families. Hum Reprod 12: 1349, 1997

305 Golombok S, Tasker F, Murray C: Children raised in fatherless families from infancy: Family relationships and the socioemotional development of children of lesbian and single heterosexual mothers. J Child Psychol Psychiatr 38: 783, 1997

306 Ryff CD, Seltzer MM (eds): The Parental Experience in Midlife. Chicago: University of Chicago Press, 1996

307 Fasouliotis SJ, Schenker JG: Social aspects in assisted reproduction. Hum Reprod Update 5: 26, 1999

308 Inhorn M: Infertility and Patriarchy: The Cultural Politics of Gender and Family Life in Egypt. Philadelphia: University of Pennsylvania Press, 1996

309 Schwartz A: Taking the nature out of mother. In Bassin D, Honey M, Kaplan MM (eds): Representations of Motherhood, pp 240–255. New Haven, CT: Yale University Press, 1994

310 Krimmel HT: Surrogate mother arrangements from the perspective of the child. In Alpern KD (ed): The Ethics of Reproductive Technology, pp 57–70. New York: Oxford University Press, 1992

311 Altman LK: Health panel seeks sweeping changes in fertility therapy. New York

Times April 29, 1998, A1

312 Gelles RJ: The Book of David: How Preserving Families Can Cost Children's Lives. New York: Basic Books, 1996

313 Murphy PT: Wasted: The Plight of America's Unwanted Children. Chicago: Ivan R. Dee, 1997

314 Solnit AJ, Nordhaus BF, Lord R: When Home Is No Haven: Child Placement Issues. New Haven, CT: Yale University Press, 1992

315 Westman JC: Licensing Parents: Can We Prevent Child Abuse and Neglect? New York: Plenum, 1994

316 Woodhouse BB: Hatching the egg: A child-centered perspective on parents' rights. Cardozo Law Rev 14: 1747, 1993

317 Scarnecchia S: Who is Jessica's mother? Defining motherhood through reality. J Gender Law 3: 1, 1994

318 Dwyer JG: Setting standards for parenting: By what right? Child Psychiatr Hum Dev 27: 165, 1997

319 Slotkin T, Satel SL Thomsen J et al: Protecting fetuses, jailing mothers [Letters]. New York Times June 16, 1998, A30