The Affective Quality of the Relationships between Mothers Recovering from Cocaine/Polydrug Addiction and Their 12-Month-Old Infants

Jane Reed Vanbremen

Loyola University Chicago

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LOYOLA UNIVERSITY CHICAGO

THE AFFECTIVE QUALITY OF THE RELATIONSHIPS BETWEEN MOTHERS RECOVERING FROM COCAINE/POLYDRUG ADDICTION AND THEIR 12-MONTH-OLD INFANTS

A DISSERTATION SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL IN CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY ERIKSON INSTITUTE

BY
JANE REED VANBREMEN

CHICAGO, ILLINOIS
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CHAPTER I

INTRODUCTION

A recovering mother holds her daughter as she feeds her a bottle. During the whole feeding the baby watches her mother’s face intently. The mother alternately looks down at her daughter or out into space, but the expression on her face remains impassive. She does not smile or talk at all. Later, watching a videotape of this interaction, the mother is asked what her daughter sees when she looks up into her face. The mother says: "She sees a mother who loves her very much." What does the baby experience in this interaction? What is the relationship between the affect the mother says she feels and what she actually expresses in the interaction with her infant? And what are the implications for the infant’s development?

This study of the relationships between addicted mothers and their infants addressed one aspect of a multi-faceted problem that has become a serious national concern--the rising incidence of maternal substance abuse. Although estimates vary, researchers have agreed that a significant and increasing number of newborns in the United States are prenatally exposed to drugs. At the Harlem Hospital Center in New York, urine screening identified 13 percent of all
births as being positive for detectable levels of cocaine between January, 1986 and December, 1990 (Davis, 1991). A California hospital survey of 1992 births found that 11.35 percent of maternity patients used a licit or illicit drug or alcohol within hours or days of delivery (Vega, Kolody, Hwang & Noble, 1993). Using information from the National Institutes on Drug Abuse (NIDA) Household Survey, Gomby and Shiono (1991) estimated that between 550,000 and 739,000 infants born in 1990 were prenatally exposed to an illicit substance. They found the highest prevalence rates among poor, inner-city mothers.

The consequences of maternal substance abuse are experienced at many levels, from the direct effects on children and their mothers and the intimate relationships between them, to issues concerning society as a whole. Issues related to maternal substance abuse range from concerns about the toxic effects of cocaine on the fetus to the recognition that government efforts to effectively reform national crime, health, and welfare systems must address the impact of substance abuse.

There are costs associated with substance abuse for the addicted mother (and for all addicted persons). Abuse of cocaine, the primary drug of women in this study, results in a loss of control and a preoccupation with drugs that takes precedence over all other concerns. Addicted persons continue to use drugs despite the negative impact on their
health, family, or work (Thurman & Berry, 1992). Addiction is a progressive, degenerative disease that can result in death or permanent damage to the brain and other organs. The adverse effects of cocaine include cardiovascular, respiratory, neurologic, and psychiatric problems (Farrar & Kearns, 1989). The lifestyle associated with addiction is often accompanied by poor nutrition, lack of prenatal care, and sexually transmitted diseases (Haller, 1991). Addiction may result in premature death, contribute to a descent into psychiatric illness, or lead to criminal activity. Addicted women often lose custody of their children and may have their parental rights permanently severed. Successful pathways out of addiction are long and difficult and require a life-long commitment to recovery (White, 1990).

Children born to women who abuse illegal substances may be affected directly or indirectly beginning at conception. Meta-analytic reviews of research studies meeting adequate standards have concluded that inutero cocaine/polydrug exposure is likely to result in higher risks for low birthweight, small head circumference, shorter birth length, shorter gestational age, genitourinary malformations, and shorter gestational age (Lutiger, Graham, Einarson, & Koran, 1991; Schutter & Brinker, 1992).

Only one study has examined the effects of prenatal cocaine/polydrug exposure on the development of infants and toddlers through three years of age (Griffith, Azuma &
Chasnoff, 1994). Although this study found no differences in global intelligence among cocaine/polydrug exposed children, noncocaine/polydrug exposed children, and a control group of nonexposed children, examiners found that drug-exposed three-year-old children had greater difficulty in sustaining attention during difficult tasks. Caretakers rated children in both drug groups as more aggressive than the control children. Cocaine/polydrug exposed children who continued to live in a drug-using household were found to be delayed by a standard deviation or more on the verbal reasoning portion of the Stanford-Binet Intelligence Scale: 4th Edition (Thorndike, Hagen & Sattler, 1986) (SBIS) significantly more often than those children living in drug-free environments.

In addition to the biological and environmental impact of maternal substance abuse that may affect children's developmental potential, children growing up in families affected by maternal substance abuse may experience what is in effect a "lost childhood" (Sheehan, 1993). Infants are directly affected when welfare money is spent on drugs rather than formula or diapers (Regan, Ehrlich & Finnegan, 1987). Children may have to contend with reversals in caretaking roles, neglect, abuse, bouts of homelessness, and foster care placements. The National Committee for Prevention of Child Abuse (NCPCA) estimated that 675,000 children are maltreated each year by a chemically dependent caregiver
(NCPCA, 1989). Another study found that 40 percent of confirmed cases of child maltreatment involved substance abuse (Daro & McCurdy, 1991). It has been estimated that as many as 80 percent of new protective services cases may be linked to substance abuse (Feig, 1990). Children removed from their mothers due to prenatal exposure and/or neglect associated with maternal drug use may wait for years before permanent custody is decided (Dugger, 1994).

The earliest relationships between addicted mothers and their infants may suffer as a result of maternal substance abuse. Escamilla-Mondanero (1977) reported that addicted mothers tend to have unrealistic fantasies about positive lifestyle changes that will be associated with motherhood and distorted ideas about infant developmental tasks. Many of the characteristics associated with addicted women are likely to have a negative impact on early mother-infant relationships. These women tend to have chaotic lives, live in high-stress environments, and have inadequate social supports (Haller, 1990). They have been described as impulsive and having a low toleration for frustration. The guilt and shame mothers feel about using drugs during their pregnancies may also affect their relationships with their infants (Freier, 1994). Infants exposed to drugs in utero have been described as more irritable at birth and less alert at one month (Chasnoff, Griffith, McGregor, & Dirkes, 1989). The interactions between these mothers and their
infants are likely to be difficult and unrewarding and result in an infant-caregiver system that is disorganized and poorly regulated (Beeghly & Tronick, 1994).

Beyond the dyad, maternal substance abuse affects support systems necessary to sustain mother and child. Addicted mothers are not likely to be married or have supportive relationships with the infants’ fathers. Many come from dysfunctional homes where their own parents abused substances. Often they were physically or sexually abused further straining those relationships (Boyd, 1993; Haller, 1991). In turn, addicted individuals also affect relationships within their families. Grandparents or other relatives may be forced to take on the parental role when addicted mothers are unable to care for their children rather than fulfil their traditional roles in support of their children as parents.

Maternal substance abuse strains institutions designed to support families at risk. Social service agencies have reported being overwhelmed by families involved in substance abuse. A 98 percent increase in foster care placements in New York between 1986 and 1989 has been blamed on parental drug abuse (Besharov, 1990). Child welfare agencies are finding that children affected by substance abuse are more difficult to place in foster homes, move in and out of the system erratically, and have lower rates of adoption (Besharov, 1990; Feig, 1990; National Black Child Development
Institute, 1989; Walker, Zanrillo & Smith, 1991). Child welfare agencies and treatment programs have not had close connections. Practitioners may lack the attitudes, knowledge base, and skills to work with chemically dependent mothers while at the same time protecting children and preserving families (Tracy & Farkas, 1994).

Early intervention programs and public schools are affected by maternal substance abuse. Head Start administrators have acknowledged that substance abuse is the most difficult family support problem facing Head Start grantees. Meeting the needs of Head Start families affected by substance abuse requires special training and the establishment of linkages with prevention and treatment resources (Weber, 1994). A study of children in early childhood special education in New York City found that a subgroup of drug-exposed children had extremely challenging behaviors. These behaviors resembled the stereotypic image of drug-exposed children and differed from the behaviors of nonexposed children in the same program (Cohen & Erwin, 1994). However, early childhood special educators have concluded that prenatal drug-exposure is not a diagnosis requiring intervention. Rather, they advocate that provision of special education services can be aided by research addressing prenatal exposure in the context of the child’s environment (Shriver & Piersel, 1994). Public school educators have expressed concerns that children prenatally exposed to drugs
will be difficult to educate in regular classrooms and ultimately become a serious burden to society (Hawley & Disney, 1992).

Children born with prenatal drug exposure have had a significant impact on medical costs. One study calculated that hospital costs for cocaine-exposed infants were $5,200 more than for nonexposed infants. In addition, it was found that "border baby" hospital costs related to foster care placement averaged another $3,500 per infant (Phibbs, Bate­man & Schwartz, 1991).

As the increasing numbers of infants born with evidence of maternal drug use has been documented, states have moved from a purely punitive response involving the prosecution and incarceration of pregnant addicted women towards an approach more focussed on prevention and treatment (Mar­shall, 1991). But treatment programs for addicted women and their children have not been readily available. Only six years ago Jones and Lopez (1988) reported that "no preven­tive intervention programs have been located which are targeted specifically on [drug abusing] women and prenatal care" (cited in Weston, Ivins, Zuckerman, Jones & Lopez, 1989, p. 4). Recently agencies have begun to establish treatment programs serving pregnant and/or parenting women. The National Committee on the Prevention of Chid Abuse (Jones & Ackatz, 1991) reported that 2,093 programs in the United States served pregnant women. Of 26 states report-
ing, estimates of the percentage of pregnant women served ranged from 1 percent to 53 percent with an average of 14 percent. In an in-depth survey of 35 treatment programs for addicted pregnant women, it was found that 23 had some type of parenting services.

These programs have faced a multitude of issues in their efforts to provide addiction treatment and intervention for drug-using mothers and their children. There are few treatment models available that were designed to meet the needs of mothers and children. In addition, a thorough understanding of the relationships between addicted parents and their children has been neglected in recovery literature. This is due to a number of faulty assumptions about the nature of parenting during addiction and recovery (White, 1990). These assumptions have included the beliefs that addicts once possessed parenting knowledge and skills but that these skills deteriorated through the progression of addiction, that parental functioning will automatically improve early in recovery, that child abuse will automatically cease, and that children of addicts will easily adjust to parental recovery.

The first wave of research in this field centered on studying the prenatal effects of cocaine on neonatal outcomes and infant development. Little effort has been put forth that might help programs as they struggle to combine treatment for addiction with efforts to strengthen parent-
child relationships. Lester and Tronick (1994) suggested that a paradigm shift is necessary as research in this new field enters a second generation. They concluded that research should now focus on the effects of cocaine in the context of multiple risk factors affecting the parent-child relationship. Understanding how the complex risk factors associated with maternal drug use affect children's development requires a focus on early caretaking environments and the quality of mother-child relationships. Beeghly and Tronick (1994) reviewed the possible effects of maternal cocaine use on the process of mutual regulation and concluded that drug-using mothers and their infants might have extreme difficulty establishing and maintaining satisfactory relationships. However, they found little research that has examined the parenting behaviors of these mothers.

A research focus on relationships between addicted mothers and their children is supported by recent early intervention studies concerned with the development of handicapped children. These studies found that the quality of early mother-infant interactions predicted improved developmental outcomes among handicapped infants (Shonkoff & Upshur, 1993). Previously, many authors have discussed how disruptions in the parent-child relationship can negatively impact the child's development (Belsky, 1984; Bretherton, Biringen, Ridgeway, Maslin & Sherman, 1989; Emde, 1984; Kohut, 1987; Sameroff & Chandler, 1975; Stern, 1985). In
seeking to understand the essence of how these early interactions influence the child’s development, the infant’s experience of affect is seen as a central feature (Emde, 1989). Dunst and Trivette (1992), building on Garbarino’s (1982) concept of risk and opportunity factors, found that both family risk and opportunity factors had, respectively, detrimental and enhancing effects early in children’s lives. Because affect may be identified as both negative and positive in mothers and children, studying this variable when infants are 12 months old may contribute to understanding the relationship between risk and opportunity factors in early mother-child relationships.

Understanding relationships between addicted mothers and their infants demands the use of a theoretical framework capable of addressing what is observed in the interactions between mothers and infants and the factors that influence these interactions. Stern-Bruschweiler and Stern (1989) developed a model that includes the objectifiable interactive behaviors of the mother and infant, and the maternal and infant self-representations that influence the interaction. Included in the mother’s representations are her working model of herself as a parent and her working model of her child. Other factors that influence the relationship, such as the effects of drug exposure on the infant and the mother’s status in recovery can also be studied within this framework. This study will use measures that address
mother-infant interactions and mothers' representations of their infants directly. Mothers' representations of themselves will be explored through an examination of the risk factors in their lives that might contribute to these self-representations. Some aspects of infants' representations may be inferred from an assessment of the behaviors they display during interactions with their mothers.

Studying the relationships between drug-using mothers and their infants is more complicated than research with other high risk dyads. First, it is difficult to engage and maintain women in research when they are actively using drugs or in various stages of treatment and recovery. Second, it is important to understand the mother-infant relationship in the context of recovery, a concept difficult to define and to measure. If treatment programs are to provide appropriate interventions for mothers and infants they need to know how mother-infant relationships might be related to recovery. In addition, social service agencies making decisions about child placement need ways of assessing recovery that go beyond measures of abstinence, attendance at a treatment program and completion of parenting classes.

Addiction and the mother-child relationship appear to be related in complex ways that are not fully understood. Addiction may be related to both the mother's childhood history of poor parenting and her practice of inattentive parenting. Substance abuse is one of a number of risk
factors that interferes with the developmental task of parenthood in these women. It is not clear how the major shifts in identity required by the two processes of recovery (Brown, 1985) and parenthood (Shanok, 1990) are related. Therefore, substance-abusing mothers have been described as having a "dual diagnosis" (Pawl, 1992) that requires intervention to address their addiction and the mother-child relationship simultaneously. But parenting interventions with addicted women constitute a particularly difficult task. Addicted mothers are preoccupied with their drug habit, and recovering mothers are encouraged by treatment staff to focus all their energy on recovery. On the other hand, the addicted mother's love for her children, desire to protect her unborn child from further drug exposure, and/or fear of losing custody of her children may have motivated her to seek treatment in the first place. The intensity of addiction treatment, particularly residential and comprehensive outpatient programs, provides the potential opportunity for intervention on a scale not available to others who work with troubled mothers and their children.

The emerging literature on maternal addiction is motivated by concern for the development of children prenatally exposed to drugs. It has been suggested that the transactions taking place between mothers and their infants beginning at birth influence developmental outcomes (Sameroff & Fiese, 1990). However, few studies have addressed
mother-child relationships in this population. Professionals from the many disciplines concerned with addiction treatment and child development are involved in developing what is essentially a new field (early intervention with families affected by substance abuse). There is little empirical research to assist them in developing model programs for this population.

**Research Questions**

The purpose of this descriptive and exploratory study was to gain a greater understanding of the relationships between recovering mothers and their 12-month-old infants. The study was designed to describe the relationship between the recovering mothers' treatment status and the affective quality of the mother-infant relationship. The study examined mothers' representations of their infants through the use of a structured interview and mother-infant interactions during a five-minute segment of videotaped free play. It was expected that the results of this study would provide helpful information for programmers designing treatment and intervention programs that are focused on facilitating positive mother-infant relationships in the context of recovery from addiction. The following research questions served as the foundation and organizing basis for this descriptive and exploratory study:

1. Do addicted mothers differ in background characteristics related to at risk parenting from similar, but
nonaddicted mothers?

2a. What is the relationship between maternal representations revealed by 28 recovering mothers of 12-month-old infants and the mothers' recovery status?

2b. What is the relationship between the affective quality of the interactions expressed by 28 recovering mothers and their 12-month-old infants and the mothers' status in recovery?

3a. Are there differences in the affect revealed in mothers' representations of their infants among mothers with a high recovery level, mothers with a low recovery level, and similar, but nonaddicted mothers?

3b. Are there differences in the affective quality of mother-infant interactions among mothers with a high recovery level, mothers with a low recovery level, and similar, but nonaddicted mothers and their 12-month-old infants?

In addition, the data set generated by this study was also utilized to address the following exploratory research questions:

4a. Are there differences in the developmental achievements of the 12-month-old infants of high recovery, low recovery, and comparison mothers?

4b. Are differences in developmental levels related to mothers' recovery status in the infants of addicted mothers?

5. What is the relationship between the affect expressed in mother-infant interactions and the affect re-
vealed in maternal representations for both addicted mothers and comparison mothers?
CHAPTER II
LITERATURE REVIEW

Introduction

The costs of maternal substance abuse are borne by the child, the mother, and the relationship between them. A further price is paid by their families, neighborhoods, agencies, and the wider society. Programs are currently being developed that seek to reduce these costs by intervening in the lives of substance-abusing families. These programs combine addictions treatment and parenting interventions. They constitute what is essentially a new field—early intervention with substance-abusing families. This new field is faced with many critical issues resulting from the complex factors that influence the lives of these women and their children (and the fathers of these children). Programs have not been well prepared to take on these tasks, and better models of intervention are urgently needed. The knowledge base upon which to build these new programs is limited. There has been little empirical data available that has dealt with the process of recovery in women or provided information about parenting in the context of recovery.
This study was motivated by the desire to contribute information that will be useful in developing new models of intervention for substance-abusing mothers and their children. While developing and implementing the parenting component of the Family Recovery Center, the researcher became aware of a number of issues facing this new field. For example, it became apparent that there were conflicts between the strategies that addictions counselors used to confront the clients' addictive behaviors and methods that parenting specialists used to establish a nurturing environment for mothers and their infants. It was also noticed that recovery and parenting were related in complex ways. Knowledge connecting the quality of mother-infant relationships with their children's development led to the desire to understand specific aspects of mother-infant interactions observed in this treatment setting. Both conversations with mothers about their infants, and clinical observations of interactions between mothers and their infants seemed to vary in relation to mothers' recovery status. In particular, the presence or absence of negative and positive affect in mothers' discussions of their infants and in mother-infant interactions raised questions needing to be addressed. Therefore, this study was designed to investigate how the recovery status of mothers who are addicted to cocaine/polydrugs affects the quality of mother-infant relationships. Observations of the interactions between
mothers and their 12-month-old infants were compared with mothers' representations of their infants as revealed in a structured interview. The study attempted to examine the particular meaning of substance abuse as a risk factor for the mother, the infant, and their relationship. Risk factors associated with the addicted mothers were compared to risk factors associated with a comparison group of similar, but drug-free mothers and their infants. It was hoped that this study, focused on one point in the lives of these mothers and their infants, could begin to address these questions and thereby contribute to the provision of appropriate treatment and intervention models.

In laying the groundwork for the theoretical basis and methodological approach of this study it was necessary to understand how parental risk factors affect child development in general, as well as to address the unique risks related to maternal substance abuse. Risk factors associated with compromised parent-child relationships such as poverty, depression, parenting history, and social support are examined separately and in relation to one another. The rationale for addressing the effects of maternal substance abuse on child development through an assessment of mother-infant relationships was based on an understanding of how such risks combine and influence the most basic interactions between mother and infant beginning at birth.

This chapter will establish the validity of a focus on
mother-infant relationships as the window to understanding the effects of maternal substance abuse on children's development. Next, theory and research in mother-infant relationships that form the basis of this study are reviewed. Research concerned with both observed patterns of mother-infant interactions and the maternal and child representations that influence these interactions provides the foundation for this study. Risk factors contributing to maternal representations and influencing the interactions are revisited as the characteristics of pregnant and/or parenting addicted women are examined. Infant characteristics associated with maternal substance abuse that influence the interactions are also investigated. Studies that focus on mother-infant interactions in similar dyads are discussed prior to a review of the studies that directly address aspects of the relationships between addicted mothers and their infants. Finally, because this study is concerned with the mother-infant relationship in the context of recovery, the process of recovery from addiction, and how this process might influence relationships between mothers and their infants is addressed. Thus, the examination of risk factors associated with parental dysfunction and poor outcomes in children in general and the additional risk factors related to maternal substance abuse leads to the focus on the relationship between mother and child. A theoretical approach in which both maternal and child representations are exam-
ined as well as overt interactions provides the structure necessary to examine these relationships. The study of this relationship, in turn, highlights the many variables, including risk and protective factors and the recovery process, that contribute to the relationship between mother and child.

**Risk Factors, Maladaptive Parenting, and Developmental Outcome in Children**

Developmental problems in children have been associated both with biological and constitutional risk factors directly affecting the child and with environmental risk factors at many different levels—from the child’s intimate relationships with parents and caregivers to factors in the wider society. In addition, the transactions that occur in the relationship between child and parent reflect both biological and environmental risk factors. Each transaction holds both the potential for encouraging the multiplication of risk factors or for ameliorating them.

Studies have linked parental risk factors with lower IQ scores in four-year-old children (Sameroff, Seifer, Barocas, Zax & Greenspan, 1987) and determined that it is the number of risk factors rather than the nature of those factors that predicts outcome in the child. The risk factors identified include: maternal mental illness, maternal anxiety, parental perspectives, spontaneous positive maternal interactions, occupation of head of household, maternal education,
disadvantaged minority status, family support, stressful life events, and family size. The present study investigated similar risk factors in the lives of the drug-using mothers and the comparison group of high risk mothers.

Bernstein, Hans, and Percansky (1991) argued that multiple environmental risks affect development and that certain combinations of risk factors may have particularly negative outcomes in children. Hans (1989) found that while methadone exposure or socioeconomic status alone did not predict cognitive performance in children at age two, those children who were exposed to methadone and lived in poverty were developmentally delayed. And, as noted earlier, Griffith et al. (1994) found that drug-exposed three-year-old children who continued to live in drug-using households had lower verbal reasoning scores than those who lived in drug-free households.

Smith (1990) discussed factors in the environments of drug-exposed children that may have a significant impact on their development. She identified microsystem risk factors such as parental psychopathology concurrent with drug use, neglect and abuse, family disruption, and exposure to domestic violence. Macrosystem risk factors included growing up in communities characterized by poverty, high rates of drug and alcohol use, and violent crime. In addition, Smith noted that for minority children, the dysfunctional drug-using family may be unable to provide a buffer from the
negative racial messages of the dominant culture.

An attempt to understand the relationship between a particular mother and her infant must therefore identify the unique set of risk and protective factors influencing that dyad. Although it is the number of risk factors in combination rather than the presence of any single risk factor that threatens development, it is also important to assess the relative weights of critical risk factors, such as poverty, maternal mental illness, parenting history, and levels of social support.

**Parenting History and Social Support**

Rutter (1989) summarized concepts of parenting as a prelude to examining the assumption that serious failures in parental functioning in one generation are responsible for maladaptive behavior in subsequent generations. According to Rutter, parenting is a set of specific skills; a dyadic relationship, influenced by emotional and physical resources, that occurs in the context of other social relationships; a reflection of parent psychosocial functioning; and a result of experience raising the particular child in question and previous children. In addition, parenting is influenced by the physical, mental, and temperamental characteristics of the child.

One study addressed the question of intergenerational transmission of poor parenting by comparing women raised in institutions because of parental dysfunction and women
raised by their families (Quinton, Rutter, & Liddle, 1984; Rutter, Quinton, & Liddle, 1983). The results showed greater parenting difficulties in the institution-raised group and, in particular, insensitivity to children's cues. However, the women's ability to parent successfully was related to current social stresses and support. In examining the nature of childhood adversities related to parenting difficulties, this study found that parental deviance (criminal record, psychiatric record, drug or alcohol abuse) experienced in the child's first four years was related to parenting problems in the next generation. However, early negative experiences alone did not account for present dysfunction in parenting. Parental functioning was improved by the presence of a supportive spouse or a spouse free of serious psychosocial problems, choice of partner as part of a life "plan," and positive school experiences. Therefore, this study supported the idea that poor parenting history constitutes a vulnerability that may or may not result in parenting dysfunction in the next generation.

Crockenberg (1987) confirmed Rutter's findings regarding the possibility of current social support overcoming negative parenting history. She studied the relationship between rejection during childhood and maternal behavior among adolescent mothers. Those mothers identified as angry and punitive toward their two-year-old toddlers reported both rejection in childhood and lower levels of support from...
their partners. However, Crockenberg also found some association between current lack of social support and adverse childhood history and hypothesized that childhood rejection may interfere with the mother's ability to elicit or utilize potential sources of support.

Lyons-Ruth, Zoll, Connell and Grunebaum (1989) studied the relationship between mothers' childhood histories, the quality of the relationships in the family, relationships with peers and teachers, and maternal behavior with their own infants at 12 and 18 months. This study found that the overall adversity of the mother's history was related to the degree of negative affect and intrusiveness present in the relationship with her infant. The association between childhood adversity and maternal hostile-intrusiveness increased from 12 to 18 months. Maternal involvement was not related to overall childhood adversity, but decreased involvement was related to family disruption.

**Poverty**

Because the subjects for this study were mostly disadvantaged African-American women living in the poorest, most violent-prone communities of Chicago, it was important to address the issue of poverty as a risk factor related to maladaptive parenting. In addition, poverty has been linked to the lack of resources needed to overcome childhood adversity and to the presence of mental health problems in women (Belle, 1990). Halpern (1993) discussed both the universal
meaning of poverty for young families and the particular individual experience of poor infants and their caretakers. Poor infants are more likely to be raised by single mothers who began childbearing as teenagers, have not completed high school, and are supported by welfare. Whether or not drug abuse is involved, poor mothers are more likely to have poor health histories, receive inadequate prenatal care, and experience stress during pregnancy. Poverty decreases the chances that resources will be available to assist parents in overcoming a history of inadequate parenting. And the daily struggle of being poor further depletes whatever resources or energy parents have for their children. "Together, the correlates of poverty preoccupy parents in ways that undermine their preoccupation with their infants" (Halpern, 1993, p. 78). 

Halpern reviewed studies that have examined the interactions of poor parents with their infants. These studies report less sharing of affective states, particularly pleasure and joy (Eldridge & Schmidt, 1990); parental mood swings resulting in inconsistent responses to the same infant behaviors from one day to another (Jeffers, 1967); a lack of deep psychological involvement or attention to caregiving (Rainwater, 1970); and less enjoyment from playing with infants (Crittendon & Bonvillian, 1984). 

Studies of mother-infant interaction in populations of different socioeconomic levels have found that attachment
patterns between 12 and 18 months among poor infants are less stable than those in middle class infants (Sroufe, 1979). Most studies of mother-infant interaction make the assumption that the mother is the primary caregiver. However, poor infants may be members of large extended families in which others can provide supplemental care and nurture. On the other hand, in families where drug abuse has increased family friction and disruption, poor dyads may be even more isolated. These infants may experience even greater inconsistencies of care as maternal drug use, recovery, and/or repeated relapse cause abrupt changes in caretakers and residences.

And overlaying any discussion of poverty and parenting is the fact that conditions of poverty are becoming more extreme, particularly for minority families. Jeffers (1967) described the caretaking environment in poor families during the 1960's. She found an emphasis on physical care and a lack of enjoyment in the daily lives of these families. Two decades later, Norton (1990, p. 6, cited in Halpern, 1993) described an existence for poor children which may be more typical today with households "so crowded with adults and other children that our target babies wander around in a welter of adults, almost like little nonpersons, spoken to curtly, only if they get in the way."

Depression

Belle (1990) reviewed research documenting the connec-
tion between poverty and high rates of mental disorder, in particular the prevalence of depressive symptoms among poor women. One study cited by Belle (Hall, Williams, & Greenberg, 1985) found that low income, unemployment, and single parent status was positively correlated with depressive symptoms. Poverty increases life stresses and reduces available supports leading to the perception that one is powerless to change one's life condition. And studies addressed in what follows suggest that the use of drugs and/or alcohol may be an attempt to medicate oneself against the pain of persistent stressful life conditions.

Lyons-Ruth, Zoll, Connell and Grunebaum (1986) studied the relationship between maternal depression, maternal behavior, infant development, and infant attachment patterns in a group of high risk mothers and infants referred for clinical intervention services. The study found an unexpectedly high and stable rate of depression among the mothers despite the fact that depression was not the primary reason for the referral. While depressed mothers were more likely to be on welfare, maternal depression was more strongly related to the mothers' childhood relationships than to current demographic conditions.

In summary, many of the risk factors associated with poor outcomes in children are linked together. Even without the added factor of maternal (and paternal) drug use, the parenting potential of poor urban mothers such as those
addressed in this study is likely to be affected by multiple, complex, and worsening risk factors. These risk factors include: a history of poor parenting; minority status; poor health and lack of prenatal care; anxiety; depression and/or psychiatric illness; poverty; a lack of resources within the individual, the family, and the community; and high rates of violence. Infants growing up in families with significant clusters of such risk factors may experience interactions characterized by instability, parental mood swings, and less sharing of positive affect.

**Maternal Addiction and Multiple Risk Factors**

Mothers who abuse illegal substances constitute a newly identified and growing subgroup of high risk parents. The desire to reduce the numbers of infants with prenatal drug exposure has resulted in research comparing the characteristics of drug-using pregnant women with similar but drug-free pregnant women. These risk factors may have a causal relationship to maternal addiction and also contribute to parenting dysfunction.

Hagan (1993) compared risk factors in the lives of 28 drug-addicted women (79 percent opiate addicted; 21 percent cocaine addicted) and 30 non-addicted control women to determine whether the etiology of substance abuse in women is best understood in the context of a multiple risk factor model. The addicted women sought care at an outpatient methadone-maintenance clinic that provided a range of family
services, and the control women were recruited from a prenatal clinic. The study found that 67 percent of the drug-addicted women had at least one parent who was a substance abuser compared to 35 percent of the control women. Over 50 percent of the drug-addicted women left school before the end of the 11th grade compared to 25 percent of the control women. Sexual and physical abuse were found to occur more often in the drug-using women with 67 percent reporting sexual abuse compared to 15 percent of the control women. The study also found that drug-using women came from families characterized by conflict and control issues and a lack of cohesion and expression. Over half reported unhappy childhoods and a lack of ego center.

A study of developmental risk factors among disadvantaged postpartum women compared 40 women with positive urine tests for cocaine to 40 drug-free women (Fritz, Galanter, Lifshutz, & Egelko, 1993). This study focused on caregiver and client risk factors experienced before the age of 16. Women addicted to cocaine differed from the control women regarding inconsistent physical presence of caregivers, substance abuse by caregivers, and mental illness of caregivers. When the characteristics of the cocaine-using and drug-free women before the age of 16 were compared, the drug-using women had significantly greater school dysfunction, physical and/or sexual abuse, residential instability, and substance abuse. There was no significant difference
between the two groups as to mental illness experienced before the age of 16.

A study of 105 African-American women who used crack cocaine found significant correlations between family drug use, first age of sexual abuse, age of first depression, and age of first illicit drug use (Boyd, 1993). Sixty-one percent of the women reported at least one sexual abuse experience, and 67 percent of those who were abused reported that the first abuse occurred before the age of 17. Seventy percent of the women reported depression; 31 percent reported having depressive symptoms before the age of 15. The women reported that 33 percent of their mothers and 61 percent of their fathers abused drugs or alcohol. At least 79 percent reported having a substance-abusing sibling.

Another study investigated the physical and sexual abuse histories of 178 drug-using women in a methadone maintenance program and 70 drug-free women (Regan et al., 1987). The drug addicted women reported a significantly greater incidence of physical abuse as an adult, rape as a child or adult, and child molestation. Women with a history of sexual abuse were more likely to have children who had been placed in foster care.

Other studies have focused on the psychiatric histories or current mental health symptoms of drug-using mothers. Chavkin, Paone, Friedmann and Wilets (1993) interviewed 146 mothers who used crack cocaine. These mothers were recruit-
ed from both treatment and nontreatment settings to obtain as representative a sample as possible. The study found that the majority of the women had grown up in chemically dependent families and approximately half had been sexually abused. Of the total group, 28 percent reported histories of previous psychiatric medication or hospitalization. These women were more likely to be currently in drug treatment, to have sexual abuse histories, and to be involved with men who urged them to use crack during their pregnancies. The authors identified two subgroups of the women with psychiatric histories. One group had been sexually abused and initiated drug use earlier and the second group had psychiatric and drug use histories not associated with sexual abuse.

A study of 155 low income mothers, of whom 24 used cocaine, found a high frequency of psychiatric symptoms among 71 percent of the total group of women, but no differences in psychiatric symptoms associated with cocaine use (Neuspiel & Hamel, 1992). Drug-using women had less education, higher parity, and less prenatal care.

Haller (1991) discussed the findings from a treatment and demonstration project at Virginia Commonwealth University. It was found that pregnant addicts often sought treatment because of the threat of incarceration or the loss of their children. The women were usually in a crisis state in every aspect of their lives and had few resources. These
women's lives were characterized by a multitude of factors that mitigated against successful parenting:

Pregnant addicts have few stable relationships. They are often involved with men who are addicted and abusive. Few are married (7 percent) or in a monogamous relationship for any extended period of time. Eighty percent have other preschool-age children whom they are raising alone. These children frequently have different or unknown fathers. Reliance upon public assistance is a given (80 percent) and many have grown up under this system. (p. 16)

Haller's clients had a mean IQ of 86, placing them in the low average range of general intelligence. Fifty percent of the women had at least one non-addiction related Axis I psychiatric disorder, and 97 percent were diagnosed with Axis II disorders. Finally, the pregnancies of the addicted women were characterized by poor general health, late or absent prenatal care, poor nutrition, and multiple sexually transmitted diseases, including human immunodeficiency virus (HIV).

Given all the characteristics of addicted women who become mothers, adequate parenting seems to be an almost impossible goal. Davis (1990) compared attributes associated with effective parenting and the parenting characteristics and child-rearing outcomes of chemically dependent women. Characteristics associated with chemically dependent women who physically and/or sexually abused their children included low frustration tolerance, dependency, severe depression, difficulty in experiencing pleasure, and misperceptions of the needs and abilities of their children (Black
Risk Factors Associated With Drug-Exposed Infants

Analyses of the risk factors associated with maternal drug use initially centered on research investigating gestational cocaine use and birth outcomes. Some of this research has been hampered by methodological problems and sensationalism (Behnke & Eyler, 1994). Scientists who have attempted to conduct meta-analytic studies of research in this field have found that many studies have not met adequate criteria related to the identification of the population of drug users versus nonusers and choice of an appropriate comparison group (Behnke & Eyler, 1994). Lester and Tronick (1994) reviewed the available research and concluded that infants exposed to drugs cannot be easily categorized and are best described as a special case of high risk infants. Environmental factors are likely to play a significant role in determining eventual developmental outcomes. The few long term follow-up studies are finding that there are both direct and indirect risks associated with maternal drug use that affect developmental outcomes in these children.

However, there are direct consequences that have been attributed to maternal drug use. A review of studies that compared cocaine users with drug-free control groups found that cocaine use was associated with a higher risk for spontaneous abortion, shorter gestational age, smaller head
circumference, shorter birth length, and lower birth weight. Increased risk for genitourinary malformations and shorter gestational age were associated with cocaine users versus polydrug/noncocaine users (Lutiger et al., 1991). However, there is much that remains unknown about the neurological effects of prenatal cocaine exposure that may result in developmental and behavioral problems (Mayes, 1994).

Lester et al. (1991) found that cocaine-exposed infants had cries of longer duration and higher frequency than non-exposed controls and Chasnoff et al. (1989) found exposed infants to be irritable at birth and less alert at one month. Infants with such characteristics are often fussy, fragile, and difficult to care for whether or not their mothers are drug users. Mother-infant interaction in the early caretaking environment is likely to be compromised when the infant has one or more of the characteristics associated with prenatal drug exposure. The transactional model (Sameroff, 1983, 1987; Sameroff & Chandler, 1975) described how characteristics of both the infant and the mother in continuous dynamic interaction influence the course of the child's development. This model postulates that infant characteristics related to birth complications might cause anxiety in the parent and thereby influence the interactions between parent and infant. This transactional model seems particularly relevant for addicted mothers and their infants.
Longitudinal research with children identified early in life as having similar birth complications to infants exposed to drugs in utero has found that the majority of children with such biological conditions do not develop intellectual or social problems later in life (Sameroff, 1986; Sameroff & Chandler, 1975). And Werner and Smith's (1982) research demonstrated that children with perinatal complications have been indistinguishable from children without complications when factors in the environment have favored development. As discussed above, Sameroff et al. (1987) found that it was the number of risk factors rather than the nature of those factors that determined outcome in the child.

In a study of the neurobehavioral development of children born to women on methadone maintenance and a control group of children of drug-free women, Johnson, Glassman, Fiks, and Rosen (1990) found that three distinct clusters emerged. While the methadone children were disproportionately found in the group with the poorest development, this study also found that many of the drug-exposed children were doing well. An examination of clinical ratings of the quality of the home environment and records of family disorder revealed that the drug-exposed children coming from homes with higher negative ratings of the environment were likely to be those with the poorest development. Conversely, the drug-exposed children with supportive environments
had overcome their initial medical vulnerability to become resilient children whose development outstripped that of the drug-free children. Johnson et al. concluded that the significance of prenatal drug exposure as a risk factor is best understood in the context of the childrearing environment.

Among the findings of the follow-up study of three-year-old drug-exposed children discussed in Chapter I (Griffith, et al., 1994), was the fact that children who continued to live in drug-using households were more delayed in verbal reasoning than children living in drug-free environments. Confirming the interrelationship between biological and environmental factors in determining the developmental outcomes of drug-exposed children, Azuma and Chasnoff (1993) developed a path analysis model to examine the direct and indirect effects on three-year cognitive functioning. Their findings indicated that drug exposure is both directly and indirectly linked to intellectual outcome as assessed by the Stanford-Binet Intelligence Scale, 4th Ed (Thorndike et al., 1986). Three indirect paths, home environment as assessed by the Home Screening Questionnaire (Coons, Gay, Fandel, Ker & Frankenberg, 1981), child behavior as measured by the Child Behavioral Checklist (Achenbach, 1988), and a summative measure of child perseverance and head circumference accounted for 48 percent of the total variance in three-year intellectual outcome in this group of 117 drug-exposed
As the research above indicated, studies of drug-exposed children have begun to confirm the critical influence of the child's environment in determining developmental outcome. To understand the effects of the environment it is necessary to examine the earliest interactions between mother and child. Lester and Tronick (1994) suggested that research on prenatal cocaine exposure and child outcome has entered a second generation. Lessons learned from the first generation of cocaine research have necessitated a restatement of the problem. First, is the realization that the problem is one of polydrug use, not of cocaine alone. Second, and most significant, is the conclusion that maternal cocaine use is identified with a life-style associated with poverty that may jeopardize normal developmental outcomes. A systems approach is suggested in which the drugs have a direct acute effect and an indirect long-term effect on development. Beeghly and Tronick (1994) hypothesized that maternal drug use has negative consequences for the regulatory functioning of the mother-infant dyad. "Although very few studies of the proximal caregiving environment of drug-exposed infants have been carried out (and even fewer that focus specifically on the dyadic regulation of arousal, attention, and affective behavior), the advancement of our understanding of the effects of prenatal cocaine exposure on infant behavior and developmental outcome demands a focus on
the caregiving environment" (Beeghly & Tronick, 1994, p. 169). Thus, an examination of the many risk factors associated with maternal cocaine abuse, from the direct effects on the infant to the lifestyle of the mother, supports an approach centered on the mother-infant relationship. The following review of theory and research in mother-child relationships will provide the structure for this inquiry.

**Theoretical and Methodological Aspects of Research in Mother-Child Relationships**

The model of parent-child relationships developed by Stern-Bruschweiler and Stern (1989) provides a framework for discussing the theoretical foundation of this study. At the center of this model are the observable behaviors on the part of the mother and the infant. These behaviors consist of the actions of the mother, the actions of the child, and the interactions between them. Influencing the interactions of the mother are the representations, or working models, she has of her infant and of herself as a parent. On the other side of the equation, the interactions of the infant are similarly influenced by developing representations of the self in relationship to others. The acceptance of this model is implicit in research that has attempted to understand parent-child relationships by examining adult and/or child representations in addition to overt interactions. The model also serves as a framework for examining all other factors that directly or indirectly influence either the
representations of the parent and the child or the interaction itself. For example, risk factors discussed earlier, such as a history of poor parenting, poverty, depression, maternal drug use, maternal attitudes, and parenting knowledge can affect the mother’s representations of herself and her child and the mother-infant interactions. In addition, factors directly related to drug use such as infant irritability and poor state regulation and maternal fatigue, malnourishment, and inability to concentrate may affect the interactions first and then be incorporated into the representations.

**Internal Working Models and Attachment Theory**

Bowlby (1969, 1973) used the concept of representational models, or internal working models of the self and others, to explain how parent-child relationship patterns are transmitted across generations. Past relationship experiences contribute to these working models which in turn create expectancies and determine behaviors in present and future relationships. Bowlby developed the concept of attachment based on these concepts of internal working models and ethological theory (Bowlby, 1969, 1973, 1980). He believed that attachment was biologically determined. The parent acts as a secure base for the child. The child is thus able to safely explore the environment and can return to the parent when threatened. The quality of the attachment between parent and child that is formed through
this process is related to the sensitivity with which the parent reads and responds to the child's cues.

Ainsworth, a disciple of Bowlby, developed a paradigm by which the quality of attachment in 12- to 18-month-old infants could be assessed and categorized (Ainsworth, Blehar, Waters & Wall, 1978). Ainsworth's original research compared observed patterns of mother-child interaction in the home with a laboratory situation that was designed to test the child's attachment to the parent when stressed (the strange situation). Attachment theory holds that the child's working model of the relationship, or attachment pattern with the parent, will be revealed by the child's behavior during this assessment. A great deal of research has been generated using the attachment paradigm. Research has shown that the emotional availability of the infant's caregiver was related to the security of the attachment (Egeland & Sroufe, 1981). Attachment has been related to the mother's parenting history (Main & Goldwyn, 1984); used as a predictor of positive characteristics such as independence, resourcefulness, curiosity, and confidence (Sroufe, 1989); and utilized to identify dyads in need of intervention in the mother-child relationship (Lieberman, Weston & Pawl, 1991).

Although the attachment paradigm is currently widely used, it has been criticized from several viewpoints. Kagan (1984) argued that attachment classifications mislabel
children whose responses during the strange situation are due to inborn temperament or their inability to deal with uncertainty and handle stress. LeVine and Miller (1990) reviewed cross-cultural attachment research and concluded that the strange situation, based on mother-child interactions in American middle-class families, is culturally biased and cannot be assumed to accurately assess parent-child relationships in other classes or cultures. Greenspan and Lieberman (1988) warned against the use of the strange situation as a single diagnostic tool because it does not include dialogue with the parent. They argued that attachment should be viewed as one part of the child's overall functioning. Others have suggested that the attachment paradigm assesses only a few behaviors in a stressful situation. To fully understand the relationship, it is argued, one must assess a greater variety of behaviors in both stressful and nonstressful situations (Field, 1987) and focus on attachment relationships in natural settings rather than laboratory settings (Zeanah, Mammen & Lieberman, 1993).

Maternal Representations of the Mother-Child Relationship

Bowlby's (1969, 1973) concept of internal working models and their transmission across generations forms the basis for understanding how maternal representations influence mother-infant interactions. Working as parent-infant psychotherapists among mothers and infants with relationship disorders, Fraiberg and her colleagues developed the concept
of "ghosts in the nursery" (Fraiberg, Adelson & Shapiro, 1975). Fraiberg et al. argued that unsatisfactory parent-child relationships can be altered only after the parent acknowledges and understands the emotions connected with significant childhood experiences. In an attempt to confirm the theories of Fraiberg et al. and to connect the attachment patterns of mother and child, Main and Goldwyn (1984) developed the Adult Attachment Interview in which a mother's experience of being parented is explored and classified. Adult attachment classifications derived from this interview were found to correlate significantly with mother-infant attachment patterns. Main and Goldwyn found that positive mother-infant relationships among women with negative parenting histories were related to the mothers' ability to recall and reconcile their painful childhood memories.

Recently, attachment theory has been connected to parents' working models of their own children. Zeanah (1991) explored the hypothesis that a parent's pattern of interpreting and experiencing a particular infant would parallel the relationship found between infant attachment and adult attachment classifications. Because mothers of avoidant infants have been found to reject their infants' cues (Cassidy & Kobak, 1988; Main, 1982), Zeanah thought mothers' perceptions of distress in other infants might differ according to the attachment classification with their own infants. They devised a study in which mothers viewed a
four-minute film segment of an infant in distress and then rated the infant’s emotions and personality. A relationship was found between the mothers’ attachment patterns and ratings of infant emotions and personality type (Zeanah, Benoit, Hirshberg, Barton & Regan, 1991). A significant (69 percent) agreement was also found between mothers’ representations of their one-year-old infants and the infants’ attachment classifications measured concurrently on the strange situation. Developed for this study, *The Working Model of the Child Interview* (WMCI) (Zeanah, Benoit & Barton, 1986; Zeanah, Benoit, Hirshberg & Barton, 1993) encourages parents to reveal their perceptions, feelings, motives, and interpretations of a particular child and their relationship to that child. The representations are classified as balanced, disengaged, or distorted. Qualitative scales measure richness of perceptions, openness to change, intensity of involvement, coherence, caregiving sensitivity, and acceptance. The instrument includes content scales rating infant difficulty and fear for safety and measures affective tones such as joy, anger, frustration, anxiety, and indifference.

**Infant Representations of the Mother-Child Relationship**

Infant attachment classifications as assessed in the laboratory by the strange situation were designed to reveal the infant’s working model of the relationship with one parent at one point in time. Stern (1985) developed a
theory that addressed the way in which infants might develop working models of themselves in relationship with others not limited solely to the attachment patterns of 12- to 18-month-old infants. This theory explaining the infant's development of a sense of self was based on research that analyzed infant capacities and parent-infant interaction behaviors. Stern believes that infants are born with an emergent sense of self which is built upon, but not replaced by, later developing senses of a core self, subjective self, and verbal self. For infants, each new sense of the self represents a major shift in the capacity to know themselves and others and to participate in new ways of relating with others. Stern postulated that infants who experience fewer periods of pleasurable arousal during the period of core self formation may form a negative affect appraisal of the self. During the formation of the subjective sense of self, the infant learns to share subjective experiences as a result of what Stern called "affect attunement" on the part of the parent. In affect attunement, the parent acknowledges and responds to the child's affective state in a different modality. When the parent fails to respond to the child's affective state, non-attunements or misattunements take place. Stern (1985) hypothesized that infants might develop working models of their relationships with others by creating prototypes of affective experiences. Beginning with their earliest interactions with others, infants
create averages of these relationship experiences. Stern called these averages "representations of interactions that have been generalized" (RIGS) and explained how they might influence the way infants respond in interactions with others. As infants experience interactions with others, RIGS are constantly updated. They are the basic building blocks from which the child constructs his working model of self in relationship with others.

**Research Methodology in Mother-Child Interaction**

Direct observation of mother-infant interactions, often in the home, has been the basis of theories that have generated much of the current research in parent-child relationships. For example, the attachment paradigm upon which so much of contemporary research in parent-child relationships is built was based on the correlations between the behavior of infants in a laboratory situation and 18 four-hour home observations of the interactions between 26 mothers and their infants (Ainsworth et al., 1978). The theories developed by Fraiberg et al. (1975) developed out of "psychotherapy in the kitchen" with mothers and infants experiencing relationship problems. Sander (1976) used observations of the interactions between mothers and infants at home to illustrate the critical relationship issues that must be negotiated at different periods during the first three years. In turn, theory concerned with parent-infant relationships and the consequences for infant development has
led to an increased interest in research in mother-infant interaction and to the development of parent-child interaction assessment measures. Studies that focus specifically on direct observation of parent-child interactions utilize several different research methodologies. Many involve analysis of videotaped interactions and in some cases, microanalytic techniques are used to count parent and child behaviors frame-by-frame. These systematic observational techniques involve continuous event coding or interval coding (Barnard & Kelly, 1990). Others use more global rating scales (Barnard, 1979; Bromwich, 1983; Jeremy & Bernstein, 1984; Clark, 1985). Bakeman and Brown (1980) found that whereas global rating scales predicted later infant social competence, microanalytic scores did not. The settings used to assess parent-infant interactions may be structured or unstructured and designed to place parent and/or child in a stressful or nonstressful environment.

Sroufe and Waters (1977) discussed the difficulties in making meaningful conclusions from mother-infant research in which discrete behaviors, such as the number of times a mother picks up her child, are counted. There are also difficulties inherent in the use of global rating scales which rely on the subjectivity of observers to make judgments about such qualities as the mother's sensitivity or the child's sociability. In reviewing measures of parent-child interaction, Farran, Clark and Ray (1990) found that
most scales are unpublished and have limited validity and reliability data. While noting the helpfulness of scales in rating parent-infant interactions, they emphasized the danger of a deficit-oriented mindset arising from the use of single measures.

The Parent-Child Early Relational Assessment (PCERA) (Clark, 1985) was developed for use in The Mothers' Project, a research and intervention study that compared the mother-child interactions of 65 psychiatrically ill mothers and 36 mentally healthy mothers and their preschool children (Musick, Clark & Cohler, 1981). The PCERA was used to assess the unique affective and behavioral characteristics of the mother, child, and dyad by rating videotaped segments of maternal, child, and dyadic interaction. This study hypothesized that maternal mental illness constitutes a significant risk for children's development (Stott, Musick, Clark & Cohler, 1983). It was found that psychiatrically ill mothers had significantly less affective involvement and consistency in the interactions with their children than well mothers. Scales adapted from the PCERA have also been used to compare mother-infant interaction with infant attachment classifications (Teti, Nakagawa, Das, & Wirth, 1989). Mothers of securely attached infants were found to be less depressed, withdrawn, and anxious; more sensitive; and more effective in structuring play than were mothers of insecurely attached infants during free play.
Understanding relationships between parents and children requires attention to both the interactions and the representations of parent and child that influence the interaction. Cramer (1986) suggested this dual approach as the foundation for understanding affective disorders in infancy:

"...first, we need to pay equal attention to observational data (revealing the modalities of overt interaction) and to verbal reports (revealing the characteristics of "imaginary interaction"); second, we need to pay equal attention to what is produced by the parent and by the child, leading to an assessment of interactions, both overt and imaginary. (p. 32)"

There is a great deal to consider when attempting to understand parent-child relationships. Observations and conversations can center on constructs such as caregiving sensitivity and responsivity, mutuality and reciprocity, or organization and regulation. An important element influencing all relationships, however, is the expression of affect and responsiveness to this affect.

**The Role of Affect in Mother-Child Relationships**

Affect has been conceptualized as one aspect of the infant-caregiver relationship, an indicator of developmental transformations, or the critical factor that leads development. As noted above, expressions of affect on the part of parent and child are a significant part of the theories of major researchers addressing the mother-child relationship. Others have focused specifically on affect in studies of mother-child interaction.
Emde (1989) described affect regulation and sharing on the part of the child and empathic responsiveness on the part of the parent as one of several functional aspects of the caregiving relationship. When a mother is responsive to and accepting of a wide range of both positive and negative affective expressions in her child she is said to be emotionally available (Emde, 1980).

It has been proposed that affective changes in the child's behavior may be signals that accompany developmental transformations. Emde, Gaensbauer and Harmon (1976) found affective changes to be clearest at the end of a biobehavioral shift. They concluded that affect might play a role in the integration and consolidation of development. The joy expressed by one-year-old toddlers who can explore the world in new ways because they have mastered locomotion (Mahler, Pine & Bergman, 1975; Sroufe, 1979) is cited as an affective shift that might be a consequence of development.

Emde (1989) also discussed the role of affect in organizing experience. Infants from 9 to 18 months monitor the facial affect expressed by their caregivers as they decide how to act in uncertain situations. This concept, known as social referencing, has been used experimentally to show how infants behave in response to positive or negative affective signals from caregivers (Sorce, Emde, Campos, & Klinnert, 1985). Research has also demonstrated that the caregiver's emotional availability was related to the infant's security.
Another viewpoint is that affect leads development, rather than following or organizing developmental growth. Demos (1988) argued that much of infants' behavior from birth onward is influenced by their affective experiences. According to Demos, affective experiences motivate infants to perform actions which increase the experience of positive affect or decrease the experience of negative affect. Demos constructed the case for this theory of a motivational function of affect by building on the work of Tomkins (1962, 1963) and Sander (1982) among others. Tomkins believed that humans have an inherited capacity, present at birth, to register nine primary affects and that the affective system is the primary motivational system in the personality. Demos suggested that infants learn to initiate and regulate responses to affective states through interactions with caregivers. The infant and caregiver constitute a system of two agents capable of mutual influence, action and feedback. Demos demonstrated these concepts by describing how two dyads experienced and learned responses to both positive and negative affective states in their first year. In one case the caregiver failed to respond to the infant's early state of alert interest, and the infant did not experience herself as an agent capable of modifying her affective states. Gradually, this infant's muted responsiveness was generalized to interactions with
others besides the mother. "Cathy remained responsive to the social initiatives of others, but she rarely initiated such exchanges and did not protest their cessation" (Demos, 1988, p. 45). In the second case, Donna, an infant described as initially not very "smiley" learned that she could make interesting and enjoyable things happen through reciprocal exchanges with her mother in which she was encouraged to be an active agent. The two mothers' responses to their infants' experiences of negative affect were also considered. In the former case, the mother saw her primary role as that of soother, and never assisted her infant in learning to regulate her own negative affective states. On the other hand, Donna's mother assisted her daughter to learn self-regulation by scaffolding her responses to the infant's distressed states. This research suggested that affect may be a critical organizing construct in the relationship between mother and infant.

**Depression and Mother-Child Interaction**

Other research has centered on how parental depression, in particular, influences mother-child interaction. Critical to these studies is the affect expressed by both mother and child. Lyons-Ruth et al. (1986) in the study discussed earlier found that maternal depression was related to increased maternal covert hostility and increased interfering manipulation. Maternal depression was also significantly related to the infants' developmental levels at one year. A
curvilinear relationship between maternal depression and infant attachment was reported with mothers of avoidant infants reporting the lowest depression scores and mothers of avoidant/resistant infants reporting the highest depression scores.

A study of intervention provided for 31 of these high risk infants found that the mother’s involvement with her infant at 12 months was related to time in treatment (Lyons-Ruth, Connell, Grunebaum & Botein, 1990). At 18 months of age, the infants of depressed mothers who received home-visiting services performed significantly better on the Bayley Mental Development Index (Bayley, 1969) and were more likely to be securely attached than infants of depressed mothers who received no intervention.

Field, Healy, Goldstein and Guthertz (1990) summarized findings on interaction between depressed mothers and their infants. Depressed mothers have been found to display flat affect, provide less stimulation to their infants, and be less responsive. Infants of depressed mothers have shown less positive affect, lowered activity levels, and less attention (Field, 1984; Field et al., 1985). Despite their low affectivity and low activity levels, infants of depressed mothers demonstrated distress during interaction by elevated heart rate and cortisol levels (Field, Healy, Goldstein, Perry & Blendell (1988). Infants of depressed mothers displayed flat affect regardless of whether the
mother’s interaction style was disengaged or intrusive (Cohn, Matias, Tronick, Connell & Lyons-Ruth, 1986). Field et al. (1988) found that infants of depressed mothers displayed depressed interaction when they were with nondepressed adults as well as when they were with their mothers. In assessing behavior-state matching and synchrony in 48 depressed and nondepressed mother-infant dyads, Field et al. (1990) found that the depressed dyads matched negative behaviors more often and positive behavior states less often than nondepressed dyads. Cohn, Campbell, Matias & Hopkins (1990) studied two-month-old infants of depressed mothers and found that these infants may attempt affectively to engage their mother in an attempt to repair interactions.

Field et al. (1985) studied interaction in 24 mothers with postpartum depression related to pregnancy complications and their three- to five-month-old infants. She used the Maternal Developmental Expectations and Childrearing Attitudes Scale (MDECAS) (Field, 1981) to assess knowledge of child development and childrearing attitudes. While there were no differences between groups on knowledge of child development, the depressed mothers’ scores on the childrearing attitudes portion of the scale indicated more controlling and punitive attitudes towards childrearing. The mother-child interaction was assessed in a videotaped ten-minute face-to-face play session. The depressed mothers were more depressed or anxious looking, showed less activi-
ty, less contented facial expressions, fewer imitative behaviors, and fewer contingent responses. The infants of depressed mothers versus those of control mothers showed less optimal state, fewer contented expressions, and more fussiness.

Murray studied 58 women with postnatal depression and a control group of 42 women with no previous psychiatric history or current depression (Murray, 1991a; 1991b). The mother-infant dyads were assessed at 18 months and the infants of depressed women evidenced a number of adverse outcomes. They were less likely to be securely attached, performed poorly on object concept tasks, had more mild behavior problems, and experienced difficulties during assessment. Murray also studied mother-infant interaction in a random subsample of this group at two three-month intervals beginning when the infants were two months old. The mothers' speech to their infants was analyzed according to syntactical form, focus (child or mother-centered), emotional tone, and ascription of agency. The speech of the depressed mothers differed from the control mothers on all forms. It was also found that the quality of maternal speech was related to the infant's performance on object concept tasks and the Bayley Scales of Infant Development.

Two studies have found that even when mothers have recovered from depression, their children continued to show cognitive delays. Cogill, Caplan, Alexandra, Robson and
Kumar (1986) found that four-year-old children of depressed mothers showed delays on the McCarthy Scales of Children's Intelligence although their mothers had improved by the time of testing. Stein et al. (1991) found that 19-month-old infants whose mothers had been depressed postnatally, but no longer had depressive symptoms, behaved more negatively to their mothers and showed less affective sharing.

Other studies have described toddlers of depressed mothers as particularly polite with adults and affectively controlled (Zahn-Waxler, Cummings, Iannotti, & Radke-Yarrow, 1984). These two-year-old children appeared to suppress negative emotions and control their reactions to frustration. If this absence of negative affect and well-behaved demeanor is present in the infants of recovering mothers, caregivers might easily interpret these as positive qualities rather than as signs of stress in the relationship.

Studies of children of depressed mothers have tended to focus on findings of negative factors as opposed to the presence of proactive maternal involvement, including positive affect. In a study of antecedents of problem behaviors in the children of depressed mothers, Zahn-Waxler, Iannotti, Cummings and Denham (1990) found that the depressed mothers who engaged in positive structuring of the child's early social environment reduced the risk that their children would exhibit externalizing behaviors at age five. Lyons-Ruth, Connell and Zoll (1989) found that positive and nega-
tive maternal affective behaviors were unrelated in a high risk sample. They argued against conceptualizing mother-infant affectivity along a single negative to positive continuum and suggested that understanding parent-child relationships requires the study of both negative and positive affect.

Because depression has been associated with maternal addiction, infants of addicted mothers may demonstrate some of the characteristics associated with infants of depressed mothers. For example, they could either show increased fussiness or have reduced negative affect and be more affectively controlled. It seems important to examine both negative and positive affect in the relationships of mothers and their infants who are at high risk for parental dysfunction.

Recovery From Addiction and Mother-Infant Relationships
Research With Addicted Mothers and Their Infants

As noted previously, researchers studying children born to drug abusers have found a great range of developmental outcomes and have begun to question what factors in the environment promote resiliency in this group of children. However, only a few studies have directly addressed aspects of the mother-child relationship among addicted women. Johnson and Rosen (1990) built on studies that connected resilience in drug-exposed children with nurturant and responsive care (Johnson & Rosen, 1985; Johnson et al.,
1990) and related maternal and observer evaluations of infant temperamental characteristics to maternal involvement and responsiveness. This study consisted of 75 infants who were videotaped with their mothers at two, four, and six months. At nine months, mothers of 42 infants completed the Carey Infant Temperament Questionnaire (Carey, 1970). A drug abuse score for each mother was obtained by multiplying the type of drug times the frequency of use. This drug abuse score correlated positively with the social worker's clinical assessment of the severity of drug abuse problems ($r = .43, p < .001$). The drug abuse score was calculated prior to delivery but was not available at the follow-up visits. Interaction tapes were rated by separate observers for seven of the nine infant temperament dimensions described by Thomas and Chess (1977) and five dimensions of maternal behavior (interacting, negative participation, apathy, vocalization, and holding). The study found little agreement between mothers and observers on infant temperament. Only activity and persistence showed significant agreement between maternal and observer ratings ($r = .32, .28$, respectively, $p < .05$). Maternal drug use habits correlated negatively with maternal ratings of infant temperament. As maternal drug abuse scores increased, maternal reports of "easy baby" characteristics decreased. No relationship was found between intensity of maternal drug use and maternal responsiveness, but overall, a disproportionate number of
mothers fell in the low range for both interaction and vocalization at two and six months, and these interactions did not increase from two to six months. Finally, maternal ratings of infant temperament were related to maternal responsiveness ($r = .27, p < .05$). Mothers rated as showing more constructive interactions with their infants also rated their infants more positively. These findings are relevant to the present study in that the mother's internal state influenced her perceptions of her child's temperament. It would seem to indicate that mothers with higher drug abuse scores would have more negative working models of their children's temperamental characteristics.

While the study discussed above addressed both overt patterns of mother-infant interaction and mothers' perceptions, other studies concerned with development have centered mainly on observations of interactions. Jeremy and Bernstein (1984) studied 17 methadone-maintained women and their four-month-old infants and 23 comparison pairs. Mothers were assessed on a variety of psychological and psychiatric instruments from which seven variables considered to be psychological and psychosocial resources for maternal functioning were extracted. These variables included: marital status, residence with the infant's father, stability of the relationship with the infant's father, severity of psychopathology, Wechsler Adult Intelligence Scale (WAIS) (Wechsler, 1981) verbal and performance IQ, and
years of education. Infants were assessed on the Bayley Scales of Infant Development (Bayley, 1969). Mothers and their infants were videotaped feeding, diapering, playing with a rattle, and playing a game. The interaction was rated using a scale developed by the authors. Infant behavior was rated as to: (1) control of state; (2) attention; (3) social awareness; (4) clarity of predictability in expressing needs; and (5) attempts to continue playful exchanges. Mothers were rated as to: (1) emotional tone; (2) contingency or pacing; (3) sensitivity in physical handling, (4) clarity; (5) interest in communicating with child; and (6) encouragement of social/communicative behaviors. Each category was scored as either poor (-) or good (+), and the pluses were added, yielding one interaction score for each of the four situations.

This study of methadone-maintained mothers found that drug use per se was not an accurate predictor of good mother-infant interaction. Rather, women with fewer psychological and psychosocial resources, as defined by the study, functioned more poorly than did women with better resources regardless of whether or not they were drug users. The study also found that patterns of motor functioning rather than drug exposure predicted the infants' interaction scores. There was little correlation between mother and infant interaction scores. The methadone-maintained women performed less well as a group; however, it was their lack
of resources rather than their drug status that predicted lower interaction scores.

This study indicated the importance of considering psychological and psychosocial resources when exploring the parenting characteristics of drug-using women. However, recovery from cocaine addiction may take a very different trajectory than that for methadone-maintained women. The interaction between a mother-infant dyad in which the mother is still using drugs or struggling to stay sober without the aid of methadone may be very different than the dyads studied by Jeremy and Bernstein (1984).

Burns, Chethik, Burns, and Clark (1991) analyzed videotaped interactions of five cocaine-abusing mother-infant dyads. The interaction was analyzed using the Parent-Child Early Relational Scale (Clark, Musick, Stott, Klehr & Cohler, 1984) (an earlier version of the PCERA [Clark, 1985] being used in the present study). Burns et al. (1991) found that these five mothers demonstrated a tendency toward rigidity and overcontrol. The mothers showed a lack of enjoyment and pleasure in relating to their infants, and there was limited emotional involvement and responsivity. An analysis of the dyadic interaction revealed low levels of reciprocity, mutual enjoyment, and regulation between mother and infant.

Gottwald and Thurman (1994) studied the effects of prenatal cocaine exposure on mother-infant interaction and
infant arousal between 12 and 48 hours after birth. The study consisted of 20 cocaine-using mothers and 20 drug-free mothers who were observed in four situations in which they were asked to: (1) play with their infants; get their infants attention (2) by any means; (3) by talking; and (4) by touching. There were five codes of maternal behaviors measured by continuous recording: proximal interaction behavior; vocal-distal interaction behavior; visual-distal interaction behavior; proximal-distal interaction behavior (any combination of the three previous behaviors); and disengaged behavior. The total percentage of time mothers spent in each of the five maternal interaction behaviors was compared. Cocaine-using mothers spent significantly more time disengaged from their infants during the play segment \((t = 2.01, p = .05)\) and only looking at their infants without touching or talking to them \((t = 2.81, p = .009)\). The cocaine-exposed infants were asleep or distressed for significantly longer periods than the drug-free infants even though they were similar in weight, and gestational age. Previous studies have found that mothers typically increase their responses to more passive infants (Brown et al., 1975; Field, 1977) leading these authors to hypothesize that the cocaine-using mothers' interactions were affected physiologically and psychologically by their drug use. The results of this study suggest that the establishment of a less optimal transaction pattern in the earliest interactions in
these dyads may predict future relationship disturbances.

**Factors Influencing Maternal Representations Among Addicted Women**

Shanok (1990) described the process of parenthood as a marker experience requiring changes in identity and intimacy or the internal self and the self-in-relation. In the attempt to understand relationships between addicted women and their infants it was necessary to look beyond what is observable in the interactions between these mothers and their infants and investigate how addiction is related to the development of maternal representations of the self and the infant. As noted above, addicted women have been identified as having many of the characteristics associated with at risk parenting, such as poverty, depression, history of poor parenting, and low IQ. In addition, many were raised in substance-abusing families and have been victims of physical and sexual abuse. They are not likely to be married or living in stable, supportive situations. Many women have already lost custody of one or more children because of their addiction. All of these factors contribute to these women's working models of themselves as mothers and to the models they are developing of their infants even before birth. Studies that have examined addicted women from a parenting perspective can contribute to an understanding of how these mothers' representations of themselves as parents and representations of their infants develop.
Chemical dependency might affect a mother's decision to become pregnant as well as her subsequent parenting abilities. The adaptation model of addiction (Alexander, 1992) describes the chemically dependent individual as one who makes maladaptive responses in the areas of interpersonal roles, awareness of self-needs, development of self-worth, and competency in adult roles. The addiction substitutes for healthy responses to stressful life events. The addicted woman's decision to become pregnant might also be interpreted as a similar maladaptive response to her past and present life crises.

Escamilla-Mondanaro (1977) described pregnant heroin addicts as women who were groomed for failure from an early age. She found that the family dynamics of these women included emotional neglect as an infant, strict sex-role socialization, and untimely expectations of performance by parents. Escamilla-Mondanaro found that the women had a diminished capacity to experience joy and playfulness; they associated all pleasure with drug use. Women in this program had unrealistic expectations about motherhood:

Women have stated that when they become pregnant their own mothers will accept and love them. Because of their pregnancies, their husbands will get "straight" jobs, stop drinking, lose weight, rent a larger apartment, pay more attention to them, stay home more, and be helpful around the house. Many women believe that they will stop using heroin or other drugs out of concern for the health of their babies and most feel that pregnancy will serve as an impetus for them to "straighten up." When questioned about what difficulties and disappointments they can foresee as a result of their decisions to keep their babies, these
women usually see few obstacles to achieving true happiness. They believe that the addition of a baby will, in effect, be associated with a wide range of "fringe benefits." (p. 62)

These women seemed to believe that pregnancy and motherhood would be an automatic marker associated with other positive changes in their lives. As Escamilla-Mondanero observed, it was impossible for the reality of motherhood to live up to this fantasy and when it did not, mothers became frustrated with their infants and behaved angrily towards them.

Based on their experience in a program for pregnant addicted women at Northwestern University, Burns and Burns (1988) described a model in which the mother's negative parenting heritage, current emotional instability, and deficits in social support combined with the difficulty of caring for a vulnerable infant and resulted in parenting dysfunction. Burns and Burns associated a cluster of parenting characteristics with drug-using mothers including immaturity, egocentrism, and difficulty in understanding infants' cues. These characteristics resulted in rejection of infants' communications, insensitive caregiving, and play directed toward the needs of the mother rather than the child.

A case study of three generations (Sheehan, 1993) illustrated the tremendous impact a mother's drug addiction can have on subsequent generations. Sheehan followed the lives of Florence Drummond, her six children, and
grandchild. The meaning of maternal addiction for this family is described as essentially a lost motherhood and a lost childhood. Only Crystal, the oldest of Florence’s children and the mother of her grandson, Daquan, had any memory of her mother as a sober working woman. Crystal’s childhood effectively ended at the age of seven. She was often kept out of school and left alone to babysit for 14-hour stretches while Florence pursued her drug habit. By the age of 14, Crystal had herself given birth and both mother and son were placed in separate foster care homes. Florence finally entered drug treatment at age 37, and attempted to reunite her family. Her children had been in foster care and/or residential programs for disturbed children almost all their lives at a tremendous cost to them and to society. Massive intervention was provided to this family, but there was no certainty that they could overcome the past and function effectively.

Thus, the lives of addicted mothers have been linked with many of the factors previously associated with maladaptive parenting. Often, they are women of disadvantaged minority status whose lives are complicated by many of the risk factors associated with poverty--depression, lack of social resources, poor health, and high levels of stress. Addicted women are likely to have lives complicated by multiple risk factors. Increasingly, the addiction makes it more likely that their own parenting histories may include
generations of substance abuse, physical abuse, and sexual abuse. If parenting is inseparable from identity (Shanok, 1990), the addicted mother's representation of herself as a parent could be influenced not only by all of the familial background and present characteristics contributing to the addiction, but also by her present identity as a drug user and preoccupation with her drug. All of these factors that contribute to the mother's identity at the birth of her child must influence the earliest mother-infant relationship patterns. In addition, these infants are not able to fulfill their mothers' role reversed expectations. Instead, they may be especially irritable and difficult to nurture. As a result, the mothers' representations of their infants are likely to be distorted.

**Mother-Child Relationships in the Context of Recovery**

In addition to the multiple, complex factors related to the parenting characteristics of addicted women, mothers' continued addiction or patterns of recovery and/or relapse also contribute to the relationship between mother and infant. The field of addiction has progressed in understanding the process of recovery, identified women's treatment issues, and begun to develop treatment models for parenting women, but there is little empirical research available that has addressed women's recovery patterns or the relationship between recovery and parenting. Mumme (1991) reviewed 14 studies dealing with aspects of recovery and
found none that explored women’s specific needs in what she termed secondary recovery, or lifestyle rehabilitation. Understanding recovery is also hampered by the difficulty of evaluating outcomes in substance abuse in general. Goldstein, Surber and Wilner (1984) reviewed all evaluation studies in the areas of alcohol and drug abuse reported in 50 major journals between 1969 and 1979 and concluded that drug abuse evaluation studies were particularly inadequate. The majority of the drug abuse outcome studies lacked baseline data, and used a single measure of outcome (addiction/abstinence). Long-term follow-up studies were rare and two-thirds of the drug abuse studies did no follow-up at all.

Few studies prior to the establishment of the National Institutes on Drug Abuse (NIDA) Perinatal 20 in 1988 have addressed treatment outcomes among pregnant addicted women (National Institutes on Drug Abuse, 1992). Although NIDA funded a number of programs for pregnant addicts in the 1970s, research produced by these programs focused mainly on obstetrical and neonatal outcomes. An exception is the Pregnant Addicts and Addicted Mothers Program (PAAM) a comprehensive outpatient program for pregnant heroin addicts in New York City funded by NIDA from 1975 to 1981 (Suffet, Bryce-Buchanan & Brotman, 1981). This program included a full range of services including parent education classes, developmental assessment, and a preschool nursery. A fol-
low-up study of 170 women enrolled in PAAM for at least six months yielded interviews with 100 clients. Information was gathered on changes and program helpfulness in seven life functioning areas: drug use, health, family relationships, friendships and leisure activity, housing, legal involvement, education, and income. Results indicated that clients' perceptions of program helpfulness were associated with positive changes, particularly in drug use, health, family relationships, and friends and leisure. Another study based on the same program (Suffet & Brotman, 1984) found that women enrolled while pregnant generally remained in the program and delivered infants free of complications. One-year-old infants of PAAM mothers performed significantly better on several developmental measures than did children of a comparable group of non-PAAM addicted mothers (Suffet & Brotman, 1981).

In order to understand how addiction and the recovery process may affect mother-child relationships, it was necessary to examine what is known about recovery from addiction. Brown (1985) developed a model of recovery based on a study of male and female abstinent alcoholics. According to Brown, recovery is not a mirror process corresponding to the downward spiral of addiction; what is lost in the process of becoming addicted is not automatically regained in recovery. Instead recovery is a developmental process that begins with a transition phase during which one becomes abstinent and
accepts a primary identity as an alcoholic. This is followed by early recovery and ongoing recovery phases. These phases are defined by changing patterns of interaction with three components: the focus on addiction, environmental interactions, and interpretations of self and other. Thus, addiction is a behavioral and cognitive disorder requiring a major transformation in identity and a new structuring of self, including behavioral, cognitive, and affective elements. Brown theorized that this process of development and knowledge construction was similar to Piaget's (1954) processes of assimilation and accommodation as described by Greenspan (1979). Brown discussed the affective changes during phases of recovery. Affect in the transitional phase is often restricted or absent. The early period of recovery is characterized by two patterns of affect with a wide range in between. The most frequent affective response in women is depression and low self-esteem; others may experience a temporary elation accompanied by high self-esteem known as the honeymoon period. Feelings associated with memories denied in transition or early recovery emerge in ongoing recovery. Learning to deal with these new feelings, both positive and negative, is part of ongoing recovery along with the construction of a new personal identity and relationships with others. For example, one woman who had been sober for a year recalled that it was impossible for her to acknowledge that she had hurt her children early in
recovery:

I was positive I didn't hurt my children. Nobody could tell me my drinking affected them at all. I couldn't even identify with women similar to me who talked about neglecting their kids or endangering them. It just wasn't me. But now I see things quite differently. I am recalling incidents one by one in which I clearly hurt them. (Brown, 1985, p. 181)

Using Brown's developmental model, and based on experience treating a wide spectrum of substance abuse, White (1990) described addiction and recovery as cultures that include unique languages, values and rituals. A variety of pathways may lead to "the culture of addiction" including genetic predisposition, self-medication, psychiatric illness, developmental crisis, family dysfunction, peer relationships, cultural norms, and personality disorder. Regardless of the etiology, however, the culture of addiction serves to encourage patterns of thinking, feeling and behaving that support continued drug use. Becoming an addict means taking on the identity of this culture through language, values, and rituals and a lifestyle centered on the all-consuming need for drugs and avoidance of the negative consequences related to drug use. White suggested that the negative personality characteristics associated with addiction--paranoia, depression, narcissism, inability to sustain intimacy, manipulating behavior, problems with authority, and amorality--may be defenses associated with the culture of addiction rather than permanent personality traits. He described the recovery process as "the culture of recovery"
in which treatment based on the 12-step process of Alcoholics Anonymous (AA) is aimed at a restructuring of identity. The goal is for an individual to progress from recognition of self as addict, to ex-addict and recovering addict with help from the language, values, and rituals of the culture of recovery. Recovery is more than abstinence, and in fact, it is possible to "do treatment" without progression in recovery. "In late stages of recovery, the identities of addict and recovering addict--so long denied and finally embraced--now get integrated into a broader definition of self" (White, 1990, p. 490). It is only in the late stages of recovery with the emergence of this new sense of self that one begins to experience joy. As mentioned in Chapter I, White (1990) states that parenting in the context of recovery is a neglected issue complicated by faulty assumptions. These assumptions may be further complicated by the changes in affect that accompany various stages of recovery and the resulting effects on parent-child relationships.

Prior to the inclusion of mothers with children in residential and outpatient treatment centers, questions had been raised about the special needs of addicted women and appropriate models for their treatment. For example, it has been argued that women are under represented in treatment because of unique gender-related factors related to treatment entry, engagement in treatment, and recovery (Reed, 1985). These include lack of economic resources, responsi-
bility for children, stigmas and stereotypes associated with female addiction, inappropriate treatment techniques such as confrontation, and lack of attention to intimacy/sexuality/body image issues related to incest or assault. Mumme (1991) summarized practice wisdom on recovery for women and concluded that achieving stable recovery takes two to three years and an ongoing structure of support. She concluded that a lifetime commitment is needed to maintain recovery.

Programs that have been developed for mothers and children have found it difficult to integrate parenting interventions with treatment and have questioned whether the traditional techniques used to confront addiction are likely to be successful in strengthening parent-child relationships. One program found that a paradigm shift on the part of staff was required before they were able to view the nurturing of parents as a significant part of their role in helping women achieve recovery. It was also found that mothers' stages of recovery affected their parenting needs. Mothers in the early stages of recovery were tired, depressed, malnourished, and had difficulty concentrating. Later in recovery, mothers coming to terms with their guilt often set unrealistic standards for themselves as parents. They were disappointed when children did not spontaneously recover and continued to exhibit challenging behaviors (Harvey, Comfort & Johns, 1992). Even programs with a developmental approach have found there are differences
working with this population. For example, Kaplan-Sanoff and Rice (1992) stated that in the early stages of recovery practitioners must avoid being supportive of parents in ways that enable them to continue their drug use.

The multitude of risk factors influencing addicted mothers, their infants, and the interactions between them have provided clues as to how these relationships might be affected by maternal addiction and recovery. Aside from the association of parenting dysfunction with addiction, there is little empirical evidence to shed light on how mothers' and infants' relationships might vary with the mothers' recovery status. There are, however, a few case studies and program reports that can illuminate the issues.

Brooks, Zuckerman, Bamforth, Cole and Kaplan-Sanoff (1994) described the interaction between a cocaine-using mother and her three-year-old son during a home visit in which the observer was unaware of the mother's drug use (Greer, Bauchner, Zuckerman & Amaro, unpublished). The scene was described as chaotic. The mother seemed depressed and withdrawn, had little tolerance for her child's behavior, shouted at the boy, and was unable to offer him any assistance (other than a curt direction) with a structured teaching task that was a part of the observation. This mother seemed so completely absorbed in her addiction that she was unable to relate to her child.

Pawl (1992) described the relationships between two
recovering mothers and their infants who had been referred for parent-infant psychotherapy. In one dyad, Sharon and Larry, Pawl noted a sharp contrast between the quality of the relationship when the mother was using drugs and when she was not:

On those occasions when Sharon was not using, her moment-to-moment interaction with Larry was extremely sensitive, reciprocal, engaging, and notably loving. When she was using, she was unavailable, unresponsive, and sometimes quite unaware of her son. When she was available to think about Larry, Sharon could understand his feelings and experience genuine concern for his well-being. When she was in pursuit of drugs of under their influence, Larry ceased to exist as something that could capture Sharon or motivate her. (Pawl, 1992, p. 6)

As a result of the infant-parent psychotherapy evaluation Sharon decided to seek treatment for her addiction. After 11 months of treatment and continuing support for the parent-child relationship, mother and child were successfully reunited. Pawl noted that this was a time-consuming, expensive, and successful intervention with a basically competent mother. Another dyad, Sally and Beth, were referred after the mother had successfully completed treatment and evidenced other signs of recovery. The relationship between the newly reunited mother and daughter, however, was described as alarming:

Sally was abstinent. But achieving abstinence had not rendered her an adequate mother. She no longer neglected Beth. She was present, attentive, and active. But she was also rageful and totally unsympathetic to her one-year-old daughter. (Pawl, 1992, p. 7)

Beth missed the foster mother with whom she had developed a
close relationship during her mother's treatment, and Sally had many unresolved issues from her own early relationships. The relationship improved after a year of intervention but was still not ideal. Pawl noted that work with many other similar dyads was even more difficult and less successful. The capacity to parent may vary widely in drug-using mothers, and recovery cannot be assumed to bring automatic improvements in the relationship. Pawl's experience with these mothers led her to believe that treatment for addicted mothers should be accompanied by help in understanding the effect of past relationships on their ability to parent.

Greif and Drechsler (1993) discussed significant parenting issues raised in a methadone maintenance group with a focus on understanding the impact of long-term substance abuse on family relationships. Many of these issues are related to recovery. For example, one issue discussed was the parents' difficulties providing consistency and structure for their children. Group members lacked positive parenting role models and tended to repeat the past in their relationships with their children. A critical issue revolved around the inability to parent because of guilt associated with past neglect of their children. These parents were unable to follow through with discipline, were immobilized when their children showed anger towards them, and tried to establish friendships with their children rather than a parental relationship. Another issue sur-
rounded difficulties parents had in negotiating relationships with their own parents who had cared for the children while they were addicted.

Recovery is a long, difficult, and complex process. It involves acknowledging that one's primary identity is that of an addict and gradually, through a developmental process, learning to assume a new identity as a recovering addict. Becoming a parent is also a major developmental task requiring a shift in identity. Understanding the relationships between mothers and their children must address both processes.

**Summary and Research Questions**

Based on the foregoing review of the literature, it is evident that understanding the relationships between addicted mothers and their infants is critical in order to promote the optimal development of drug-exposed children. Addicted mothers reportedly have many of the characteristics associated with dysfunctional parenting. Risk factors such as poverty, depression, and/or psychiatric illness, a history of poor parenting, poor health, lack of prenatal care, and reduced individual and community resources have been found in the lives of addicted women. In addition, addicted women are reported to have familial patterns of drug and alcohol abuse, and many have experienced physical and sexual abuse. Drug-exposed infants have been described as fragile, irritable, and having difficulties with state regulation. They may
be especially vulnerable for early relationship disturbances. Recovery from addiction requires a shift in the identity of the recovering person, and the establishment of a new lifestyle. Mothers who are using drugs or in various stages of relapse or recovery are likely to be available to their infants in very different ways regardless of their parenting capacities.

The infant’s experience of affect has been linked with development. Researchers have found that infants of depressed mothers may be fussier or have lowered affect and activity levels. The infants may continue to display decreased affect even when mothers are no longer depressed. Toddlers of depressed mothers have been described as affectively controlled. Studies of depressed mothers have suggested that infants’ development may be related to mothers’ time in treatment.

There is little research that has investigated the relationships between addicted mothers and their infants in comparison with similar but drug-free mothers. One study found that the interactions of addicted mothers and their infants lacked mutual enjoyment and reciprocity. Maternal drug abuse severity was related to negative maternal ratings of infant temperament in another study. Others have found that the interaction in these dyads was more related to level of resources than drug use.

Research in mother-infant relationships supports an
approach that explores both the mother’s internal representation of her infant and observations of overt interactions between mother and infant. To understand these representations and interactions it is necessary to examine the presence and absence of both negative and positive affect.

In order to provide an empirical basis for intervention with these mothers and their infants, this descriptive and exploratory study builds on the preceding review of literature in mother-infant relationships and recovery from addiction by addressing the research questions presented at the end of Chapter I.
CHAPTER III

METHOD

As stated earlier, this study was designed to examine the relationship between the treatment status of women recovering from addiction to cocaine/polydrugs and the affective quality of mother-child relationships as observed in a videotaped segment of interaction and as revealed in a structured interview. An effort was also made to examine variables such as the mother’s IQ, family history of alcohol and drug abuse, life crisis events, and developmental expectations as possible indicators of at risk parenting functioning. The child’s developmental level was compared to the mother’s recovery status. The recovering mothers and their infants were also compared to a group of similar, but drug-free mothers.

Setting

First of all, it should be noted that the data set for this study was collected as a part of a larger research project, The National Association for Perinatal Addiction Research and Education (NAPARE) NIDA Grant No.: DA06373. This project is entitled: Residential Care: Cocaine/-Polydrug-Using Pregnant Women. The overall objective of this five-year research project begun in August, 1989, was
to evaluate the effectiveness of residential vs. outpatient treatment for drug-using pregnant women. It was one of twenty such research projects (The Perinatal Twenty) funded nationwide by NIDA in response to concerns over the growing numbers of children born with prenatal drug exposure (National Institutes on Drug Abuse, 1992). The NAPARE project is located at The Women's Treatment Center (TWTC), a drug addiction treatment facility housing a variety of programs for women and their children. TWTC is located on the near west side of Chicago (this and all other programs referred to are located in Chicago, Illinois). This project was begun as a research and demonstration program, but funding cuts by the Illinois Division of Alcohol and Substance Abuse (DASA) limited the formal treatment portion to the period between October, 1990 and June, 1992. However, clinical support known as "enhanced services" was available to all research clients throughout the five-year period in which the project was funded. Because TWTC was not available for occupation when the grant began, the first clients (001-010) were recruited through the cooperation of Haymarket House, a residential drug treatment center. These clients resided at Haymarket House where they participated in treatment, but they also received additional clinical services and completed research measures under the direction of the NAPARE clinical staff. As these women gave birth and left the Haymarket House residential program, they gradually became
clients of NAPARE's outpatient treatment program that began on October 31, 1990 at TWTC.

NAPARE's outpatient program, known as The Family Recovery Center, provided treatment and collected data sets for clients continuing from the Haymarket program (001-010) and new clients (500s) through June, 1992. During this time treatment plans were developed; procedures for the staffing of clients were organized; enhanced services were developed; weekly schedules for clients and staff were maintained; and the research protocol was organized, refined, and divided among the staff. It had been agreed that NAPARE would not take any new treatment clients after June, 1992 but would continue to have access to all pregnant clients at TWTC for research and enhanced services. Therefore, the treatment program was gradually phased out between June and September, 1992. However, the original 34 clients (001-524) were closely followed and provided with whatever case management services they needed and/or wanted. Since September, 1992, the NAPARE research project has focused on enrolling client and comparison subjects and collecting data sets.

**Subjects**

**Experimental Subjects**

As noted above, the first clients were recruited at Haymarket House. These clients (001-010) were able to stay at Haymarket House until delivery at which time they had the option of entering The Family Recovery Center outpatient
treatment program located at TWTC. The second group of experimental clients (501-524) were recruited during intake at TWTC and participated as outpatients and research subjects at The Family Recovery Center until September, 1992. Additional research clients for the NAPARE project were recruited during intake for residential and outpatient programs at TWTC. Because the number of subjects meeting the project criteria (at least 18 years of age, no more than eight months pregnant, and no medication for psychological symptoms) at the TWTC was insufficient, outpatient and residential clients were also recruited from other treatment programs in Chicago. Outpatient subjects (700s) were recruited from Northside Interventions, in addition to TWTC. Residential subjects (800s) were recruited from TWTC, Haymarket House, and Human Resources Development Intervention (HRDI). Clients who entered Haymarket House during their pregnancy could transfer to residential programs (Haymarket Maryville or Sangamon House Recovery Program) for mother and child after delivery.

**Comparison Subjects**

Comparison subjects (900s) were recruited through a variety of sources including the Illinois Department of Public Health, infant mortality programs such as Families with a Future, and local hospitals and clinics. To be eligible, comparison subjects had to be at least 18 years old and no more than eight months pregnant. Further re-
quirements included the provisions that comparison subjects did not take medication for psychological illness and had no illicit drug use nor diagnosis of alcohol abuse or dependence within the past year. The research associate recruiting the control subjects met with supervisors, case managers, and nurses in these programs who then distributed brochures and informed prospective clients. Brochures were also posted in public aid and currency agencies, and two advertisements were placed in the Defender newspaper.

Selection of Experimental and Comparison Subjects

The 28 experimental subjects for this study were the first mother-infant dyads to complete the 12-month research battery, including a videotaped segment of mother-child interaction. It should be noted that 43 experimental subjects whose infants were 12 months old at the time of the study participated in at least one videotaping session. However, fifteen were not available for the 12-month videotaping. Twenty-five of the 28 experimental clients participated in one or more sessions in addition to the 12-month session, and three were taped at 12 months for the first time. Therefore, the total number of videotaping sessions for this cohort varied from one to seven, with a mean of 3.67.

A total of 38 comparison mothers whose infants were 12 months old at the time of the study participated in at least one videotaping session. Four comparison mothers missed the
12-month videotaping session. Thirty-three of the 34 comparison mothers participated in one or more sessions in addition to the 12-month session, and one was taped at 12 months for the first time. The total number of videotaping sessions for this cohort varied from one to six, with a mean of 4.05.

The research protocols included urine toxicologies at each data collection point. Of the 34 comparison mothers, four received one positive toxicology (two cocaine, two opiates) during their infant’s first year. These women were informed that they had tested positive for toxicology by the research associates. They were, nevertheless, retained in the comparison group.

The videotaping and interview data collection dates were calculated from the delivery date of the infant. The treatment group mean for the 12-month videotaping was 12.13 months (SD: .60, range: 10.86-14.66) and the comparison group mean was 12.09 months (SD: .61, range: 11.46-14.63). The WMCI was conducted at a mean of 12.13 months (SD: .29, range 11.53-12.83) for the treatment group and at 12.18 months for the comparison group (SD: .68, range: 11.46-14.63). It should be noted that the infant evaluation dates were adjusted for gestational age. The treatment group age mean for the infant evaluations was 12.09 months (SD: .25; range 11.7-12.66) and the comparison group mean was 12.03 months (SD: .31; range 11.53-12.63).
All of the comparison mothers had custody during their infants' first year. One treatment mother's infant lived with a maternal relative from birth to six months and one treatment mother’s infant lived with a maternal grandmother for one month during her first year. Of the 28 treatment mother-infant dyads, 6 mothers and/or infants had positive drug tests at birth, 18 were drug-free, and no data was available for the remaining 4 cases.

**Background Information on Experimental and Comparison Subjects**

Background information on all subjects was obtained during intake through the use of an assessment instrument developed by NAPARE for this purpose, the Bio-Psycho-Socio Assessment (BPS) (Appendix A). Basic demographic information yielded by the BPS is listed in Table 1.

There were two major significant differences revealed by an examination of the demographic data sets for the treatment and comparison women. The comparison women (24.12 years) were found to be significantly younger than the treatment women (29.29 years) and the mean number of children for comparison women (1.18) was less than for treatment women (2.79). No additional demographic differences were found between groups. Both groups had similar years of education (treatment: 12.00; comparison: 11.85). Most women in both groups were African-American and had never been married. Although 20 percent of the comparison women were
Table 1

Demographic Data on Treatment and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment</th>
<th></th>
<th></th>
<th>Group</th>
<th></th>
<th></th>
<th>t-value</th>
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<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>28</td>
<td>29.29</td>
<td>4.18</td>
<td>34</td>
<td>24.12</td>
<td>5.30</td>
<td>4.19</td>
<td>.000***</td>
</tr>
<tr>
<td>Years of Education</td>
<td>28</td>
<td>12.00</td>
<td>1.61</td>
<td>34</td>
<td>11.85</td>
<td>1.23</td>
<td>.41</td>
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<tr>
<td>No. of Children</td>
<td>28</td>
<td>2.79</td>
<td>1.62</td>
<td>34</td>
<td>1.18</td>
<td>1.27</td>
<td>4.39</td>
<td>.000***</td>
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<tr>
<td>Income</td>
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<td>$6909</td>
<td>20</td>
<td>$5746</td>
<td>$6475</td>
<td>.03</td>
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<table>
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<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Percent</th>
<th></th>
<th>X2 value</th>
<th>p</th>
</tr>
</thead>
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<tr>
<td>AFDC/GA Recipient</td>
<td>28</td>
<td>86%</td>
<td>34</td>
<td>74%</td>
<td>1.38</td>
<td>ns</td>
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</tr>
<tr>
<td>Race</td>
<td>28</td>
<td>96%</td>
<td>34</td>
<td>94%</td>
<td>.35</td>
<td>ns</td>
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</tr>
<tr>
<td>African American</td>
<td></td>
<td>4%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>4%</td>
<td>6%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Marital Status</td>
<td>22</td>
<td>68%</td>
<td>22</td>
<td>73%</td>
<td>.90</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td></td>
<td>68%</td>
<td></td>
<td>73%</td>
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</tr>
<tr>
<td>Married</td>
<td></td>
<td>05%</td>
<td></td>
<td>05%</td>
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<td></td>
</tr>
<tr>
<td>Divorced</td>
<td></td>
<td>18%</td>
<td></td>
<td>09%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td></td>
<td>09%</td>
<td></td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Employment</td>
<td>28</td>
<td>7%</td>
<td>34</td>
<td>20%</td>
<td>2.24</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

*** p<.001
employed at intake, compared to 7 percent of the treatment women, this difference was not found to be statistically significant. Finally, it should be noted that income and source of income for the two groups of women were found to be similar (86 percent of the treatment women and 74 percent of the comparison women received public aid).

**Project Procedures**

**Experimental Subjects**

When clients expressed interest in participation in the study, a research associate met with them and enrolled them if they so desired. Written consents for program participation and videotaping were obtained for all experimental and comparison subjects (Appendix B). To insure confidentiality, all subjects received an identification code number. Research appointments were made for times that were convenient for the treatment programs at TWTC and other related programs. Residential and outpatient clients were provided with transportation and lunch. Home visits were made to clients who had recently delivered and/or were unable to come to TWTC. It should be noted that incentives were provided for all subjects. Residential subjects were able to select baby merchandise from a "store" at the TWTC equal to a value of $3.50 per hour of research participation. Outpatient or recovery home subjects were given Jewel or K Mart coupons valued at $10.00 per research participation hour.
Comparison Subjects

Potential comparison subjects were screened during their initial phone contact with the research associate. Subjects were screened out if, in addition to the criteria mentioned above, they had an income over $10,000 or an education level above that of the client population. Screened candidates were given an appointment for an initial visit in which consent forms (research, medical, school records, and video recording) were filled out and the research schedule was more fully explained. Comparison subjects received free transportation via van, lunch, baby sitting, and $10.00 per hour in Jewel or K Mart coupons for participating in the research. After the delivery of their infant, controls were given a baby book and disposable camera. At the age of one year, the mother was given a copy of all the videotaped sessions.

The comparison subjects were managed by two research associates who followed, scheduled, and administered many of the research measures. The research associates maintained monthly contact with control subjects by phone and/or letter. It is important to note that research associates believed that comparison subjects initiated their contact with the program because of the monetary rewards but maintained their involvement because of the personal relationships that they developed with the staff. All of the comparison subjects (and experimental subjects) appeared to be
excited about receiving the videotape of their child’s first year and seemed to be interested in the developmental information that they received as a by-product of the developmental assessments.

**Instrumentation**

Maternal data sets were collected at intake, and maternal and child data sets were collected when the child was 12 months old. In addition, the NAPARE Tracking Form for Recovering Women (Appendix C) was used to determine the treatment status of the recovering mothers during their infant’s first year. The maternal and child measures utilized in this study are listed in Table 2.

Table 2

Research Measures

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**Maternal Research Measures at Intake**

- Adult Basic Learning Examination (at one month post admission)
- Adult Adolescent Parenting Inventory
- Beck Depression Index
- Maternal Developmental Expectations and Childrearing Attitudes Scale
- Maternal History Interview
- NAPARE Bio-Psycho-Socio Assessment
- Rosenberg Self-Esteem Scale
- Symptom Distress Checklist 90-Revised
- Wechsler Adult Intelligence Scale-Revised (at one month post admission)

**Maternal Research Measures One Year Post Delivery**

- Addiction Severity Index
- NAPARE Tracking Form for Recovering Mothers
- Parent-Child Early Relational Assessment
- Working Model of the Child Interview
Infant Research Measures at 12 Months
Bayley Scales of Infant Development
Parent-Child Early Relational Assessment

Dyadic Research Measure at 12 Months
Parent-Child Early Relational Assessment

Maternal Measures

Adult Basic Learning Examination. The Adult Basic Learning Examination (ABLE) (Karlsen & Gardner, 1986) is a battery of tests designed to measure the level of educational achievement among adults with varying levels of formal schooling. The ABLE was designed to measure fundamental skills that are necessary for an adult to function in society and reflect the content of adult education programs in the United States. Six subtests (vocabulary, reading comprehension, spelling, language, number operations, and problem solving) yield total language and total math scores. Norm referenced scores are available as scaled scores, percentile ranks, stanines, and grade equivalent scores. Reliability coefficients for the total language and the total mathematics scores are reported to be .94. The authors of the ABLE reported that the correlations between the corresponding subtests of the ABLE and the Stanford Achievement Test Series range from \( r = .80 \) to \( r = .81 \).

Adult-Adolescent Parenting Inventory. The Adult-Ado-
 Adolescent Parenting Inventory (AAPI) (Bavolek, 1984) was developed in 1975 to assess the parenting and childrearing attitudes of adolescents and prospective parents and to assess changes in parenting and childrearing practices after treatment. The AAPI was designed to identify four parenting and childrearing constructs most commonly associated with abusive parents (inappropriate parental expectations of the child, lack of empathy towards children’s needs, parental value of physical punishment, and parent-child role reversal). The adult normative data of the AAPI was established with 782 adults with known histories as child abusers and 1,045 adults from the general population. Race and gender norms are available for adolescents and adults. Construct validity of the AAPI reportedly ranges from .53 to .75 which is above the item-construct correlation of .50 considered desirable (Nunnally, 1967). The diagnostic ability of the AAPI to discriminate between abusive and non-abusive parents was established during the initial norming with 24 parents charged with physical abuse and 47 non-abusive parents in Wisconsin. The parenting and childrearing attitudes of abusive parents were found to be significantly more abusive than the attitudes of non-abusive parents. Scores derived from the AAPI can be used to assess an individual’s risk for abuse by comparing his/her responses to the responses of a representative sample of the general population and a population of known child abusers.
Beck Depression Inventory. The Beck Depression Inventory (BDI) is a 21-item self-report questionnaire developed from clinical experience with depressed patients (Beck, Rush, Shaw & Emery, 1979; Beck, Ward, Mendelson, Mock & Erbaugh, 1961). The BDI, developed in 1961 and revised in 1972, is a widely used and well respected measure. The BDI has been used for assessing intensity of depression in psychiatric patients (Piotrowski, Sherry, & Keller, 1985) and detecting possible depression in normal populations (Steer, Beck & Garrison, 1985). The psychometric properties of the BDI have been extensively reviewed (Beck & Beamesderfer, 1974; Boyle, 1985; Edwards et al., 1984; Lambert, Hatch, Kingston & Edwards, 1986). The items on the BDI are selected from four categories of symptoms (emotional, cognitive, motivational, and vegetative/physical manifestations). The items consist of statements that range from no depression (0) to maximum severity of depression (3). Normative data for six population samples, including alcoholics and heroin addicts, are available for the BDI. Beck & Steer (1987) reported mean Cronbach’s coefficient alphas of .86 in a meta-analysis with nine psychiatric samples and .81 for 15 nonpsychiatric samples. Given these findings, the BDI appears to be internally consistent for both clinical and nonclinical populations.

NAPARE Bio-Psycho-Socio Assessment. The NAPARE Bio-Psycho-Socio Assessment (BPS) (Appendix A) was developed by
the staff of the Family Recovery Center as a means of gathering pertinent intake data not available from other sources for all treatment and comparison subjects. Guidelines for administering and coding the BPS were formalized by the project director and research administrator, and training was provided for research assistants who administered the measure. The BPS is an interview questionnaire that was designed to gather information related to the following categories: general background information; employment history; financial situation; school and education; social and recreational activities; medical history, previous pregnancies, and current pregnancy; drug history; current family status; family history; mental health history; and psychological status.

Maternal Developmental Expectations and Childrearing Attitudes Scale. The Maternal Developmental Expectations and Childrearing Attitude Scales (MDECAS) (Field, 1981) is comprised of two scales: one that measures the mother's knowledge of developmental milestones; and one that addresses the mother's attitudes towards infant behaviors such as crying, feeding, and discipline. Field et al. (1985) found that depressed mothers scored higher on the childrearing attitudes portion of this scale indicating more controlling and punitive attitudes toward childrearing.

Maternal History Interview. The Maternal History Interview was developed for use in a study that compared the
childhood history and current psychosocial functioning of a group of mothers of infants with nonorganic failure to thrive with a group of thriving infants (Leifer, Gorman, & Grossman, 1988; Gorman, Leifer, Grossman, 1993). The interview was designed to be administered by a trained clinician and contains three sections. The first section contains 16 questions about demographic information; the second section is composed of 14 questions related to caregiver continuity/discontinuity; and the third section examines childhood crises, including sexual abuse or rape. The authors of the Maternal History Interview measured construct validity by demonstrating that the negative childhood experiences reported on the interview were associated with recalled caregiver rejection and/or neglect as reported in the Parental Acceptance-Rejection Questionnaire (PARQ). A significant negative correlation ($r = -0.476, p < .01$) was found between the 6-point parental stability rating of this interview and the (PARQ) total score in the composite sample (Rohner, 1980).

Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) is a self-administered measure of global self-esteem. Items are scored on a four point scale ranging from strongly agree to strongly disagree. Likert scores range from 10 to 40 with higher scores indicating higher self-esteem. Adult normative data was based on a Chicago sample of 2300 people, ages 18-65, who were repre-
sentative of the census-defined urbanized areas of the city. Rosenberg (1979) claimed that the instrument's conformity to theoretical predictions could be taken as evidence used to support construct validity of the instrument.

**Symptom Distress Checklist 90-Revised.** The Symptom Distress Checklist 90-Revised (SCL-90-R) (Derogatis, 1977) is a 90-item, self-administered, self-report inventory measuring symptomatic psychological distress. Clients indicate how much each "complaint" has bothered them over a given time period using a five-point scale ranging from (0) "not-at-all" to (4) "extremely." The SCL-90-R reflects psychopathology in terms of nine primary symptom dimensions and three global indices of distress. The General Severity Index (GSI) combines information on numbers of symptoms and intensity of distress. Norms for the SCL-90-R are available for psychiatric outpatients, psychiatric inpatients, and adult and adolescent non-patient normals. The SCL-90-R has shown high levels of internal consistency and test-retest reliability (Edwards, Yarvis, Mueller, Zingale, & Wagman, 1978). The findings from a large factor-analytic study (Derogatis & Cleary, 1977) contributed to the construct validity of the instrument and confirmed the dimensional constructs hypothesized to comprise the scale in a large representative sample. The SCL-90-R has been used to study affective disorders in the mothers of young children (Bromet, Solomon, Dunn & Nicklas, 1982) and in a number of
studies of drug abusers. Jacobs, Doft & Koger (1981) found the SCL-90-R to be helpful in documenting the psychological distress status of 264 methadone patients.

**Wechsler Adult Intelligence Scale-Revised.** The Wechsler Adult Intelligence Scale-Revised (WAIS-R) (Wechsler, 1981) is a widely used measure of global intelligence with an extensive literature related to the adequacy of the instrument's reliability and validity. The WAIS-R is composed of 11 tests, 6 verbal and 5 nonverbal, which yield a verbal, performance, and full scale IQ. Norms for the WAIS-R are based on groups considered representative of the United States adult population. The WAIS-R IQ distributions were constructed to have means of 100 and standard deviations of 15 points. On any of the scales for a given age, an IQ of 100 defines the performance of the average adult at that age. About two-thirds of all adults obtain IQ's between 85 and 115 (one standard deviation below and above the mean, respectively), and about 95 percent score between 70 and 130 (2 standard deviations on either side of the mean).

**Maternal Research Measures One Year Post Delivery**

**Addiction Severity Index.** The Addiction Severity Index (ASI) (McLellan, Ball, Rosen & O'Brien, 1981) was developed as a structured clinical research interview to assess the status of patients' problems in six areas of functioning commonly affected by addiction to drugs or alcohol: chemical use, medical status, employment or support status,
family and social adjustment, legal status, and psychological functioning. These problem areas are rated on a severity scale of 0-10 with 0 indicating no problem, and a rating of 9 indicating maximum problem severity. Ratings are made from responses to two types of questions. Objective items measure the life history and current status (over the past 30 days) of problems in each area, and subjective questions assess the patient’s perception of the severity of the problem in the previous 30-day period. The ASI was administered to client and control subjects by research associates. Because the ASI only gathers information about drug use during the past 30 days, an assessment of days of drug use during the interval between assessments was also recorded by the research associates. In other words, at the 12-month administration of the ASI, subjects were asked about the total days of drug use between 6 and 12 months.

NAPARE Tracking Form for Recovering Mothers. The NAPARE Tracking Form for Recovering Mothers (Appendix C) was developed by project staff for the purpose of documenting a woman’s current status in a number of categories relevant to treatment and noting any changes from previous status. Guidelines for administering and coding this tracking form were developed by project administrators, and training and guidance was provided to the counselors and/or research associates who administered the measure. This tracking form
was completed monthly on all experimental subjects. It included an assessment of the status of the client in the following areas: type of program (residential, outpatient); level of treatment; living situation; number of persons in the household; drug use; program contact; crisis events; custody of children; and employment, education, and training. An addendum to the tracking form for this cohort recorded the number of days of residential and/or outpatient treatment, total days of treatment during the target infant's first year, and the mother's recovery status when her infant was 6 and 12 months of age (Appendix D).

Parent-Child Early Relational Assessment. The Parent-Child Early Relational Assessment (PCERA) is a set of parent, child, and dyadic scales that were initially developed in conjunction with a project studying maternal psychosocial functioning and the quality of mother-child relationships. The PCERA has been further refined for use with normative and at risk populations (Clark, 1985; Clark, Paulson, & Conlin, 1993; Farran et al., 1990). The PCERA has been used to study feeding interactions (Clark, Pridham, & Chang, 1990; Pridham, 1990), relational deficits in schizophrenic and depressed mothers (Goodman & Brumley, 1990), and maternal interactions as related to Attachment Q-Set security scores (Teti, et al., 1991).

The PCERA addresses the infant/child's experience of the parent, the parent's experience of the child, the affec-
tive and behavioral characteristics that each bring to the interaction, and the quality or tone of the interaction. The 65 parent, child, and dyadic variables form six scales: Scale I. maternal positive affective involvement and responsiveness; Scale II. maternal negative affect and behavior; Scale III. infant organization, communicative and social skills; Scale IV. infant disorganization, irritability and negative behavior; Scale V. dyadic mutuality and reciprocity; and Scale VI. dyadic tension (Clark, 1993). The variables that comprise each scale are found in Appendix E. Children from two months to five years of age are videotaped with a parent for twenty minutes, and five-minute segments of feeding, structured teaching tasks, free play, and/or separation/reunion are coded on a five-point Likert scale. Interrater reliability for the PCERA has been computed in a variety of ways in different studies. Currently, Clark recommends that reliability between two raters of at least 80 percent be achieved. This is based on agreement between one point for a rating of 1-2 (area of concern) or 4-5 (area of strength), and exact agreement on a rating of 3 (some concern).

The six scales of the PCERA have undergone a number of revisions in an effort to achieve higher reliability. The most recent revision of the scales occurred in connection with the Maternity Leave and Health Project (Clark, 1993). This project used the PCERA to assess maternal and paternal
interactions with their infants in a free play situation at 4 and 12 months. Mothers’ ages were similar to those in this study (mean: 29, range 20 to 43). But mothers were mostly middle class, caucasian, and lived with the baby’s father. At least one member of the couple was employed. Scales for the 12-month segment were constructed through factor analysis using a PAF extraction and Oblimin rotation. Scales consist of the variables loading at .40 or greater (Scale I, Alpha: .94; Scale II, Alpha: .92; Scale III, Alpha: .90; Scale IV, Alpha: .87; Scale V, Alpha: .87; and Scale VI, Alpha: .78).

Working Model of the Child Interview. The Working Model of the Child Interview (WMCI) (Zeanah, 1986; Zeanah et al., 1993) is a structured interview that was designed to explore the caregiver’s experiences and perceptions of an infant or young child. The interviewer asks the parent to describe the infant’s personality and behavior. The parent is also asked to describe his/her relationship and emotional responses to the infant. The interview is recorded and transcribed. It is rated with scales that assess both the specific content of the interview and the qualitative features of the caregiver’s descriptions of the child and relationship with the child (Zeanah et al., 1993). The WMCI was designed to parallel the Adult Attachment Interview (George, Kaplan & Main, 1984) that was developed to classify adults’ internal representations of their attachment rela-
tionships with their parents. There are six scales that characterize the qualitative features of the caregiver’s representation of the infant (richness of perceptions, openness to change, intensity of involvement, coherence, caregiving sensitivity, and acceptance) and two scales that assess the content of the caregiver’s representation of the child (infant difficulty and fear for safety). The affective tone of the representation is rated by assessing joy, anger, anxiety, indifference, and frustration. Finally, the overall representation is classified as balanced (full, strained, or restricted), disengaged (impoverished, suppressed), or distorted (distracted, confused, role-reversed, or self-involved).

**Child Measures**

The child’s hospital records were reviewed to determine the status of drug testing done at birth. Child measures at 12 months included the Bayley Scales of Infant Development (Bayley, 1969) and the PCERA (Clark, 1985). These measures provided comprehensive assessment of many aspects of the child’s development (cognitive, language, fine and gross motor, social/emotional, and interactive capabilities).

**The Bayley Scales of Infant Development.** The Bayley Scales of Infant Development (Bayley, 1969) are widely used in research and clinical practice to provide a comprehensive evaluation of infants from birth to two and one-half years. The Bayley Scales yield two standard scores, the Mental
Development Index (MDI) and the Psychomotor Development Index (PDI), and an Infant Behavior Record. The MDI assesses sensory perceptual acuities, discriminations, and responsiveness. Cognitive skills such as object constancy, memory, problem-solving ability, and classification skills are assessed. Early receptive and expressive language skills are also measured. The PDI contains 81 items that measure gross and fine motor behaviors such as body control, coordination of the large muscles, and manipulative skills of the hands and fingers. The Bayley was normed between 1958 and 1962 on 1,262 infants aged 2 to 30 months and has been used in research on developmental outcomes for high risk and handicapped infants (Palisano, 1986). The mental and motor scales of the Bayley have a positive correlation of .50 to .60. Reliability coefficients for the mental scale are .81 to .93 with a median value of .80. Lower reliability coefficients of .68 to .92 with a median of .84 are reported for the motor scale (Bayley, 1969). An investigation of the test-retest reliability of the Bayley Scales with high risk infants reported reliability scores of .71 on the MDI and .69 on the PDI (Cook, Holder-Brown, Johnson & Kilgo, 1989).

Research Administration Procedures

Research measures were scheduled by the research associates responsible for a cohort of experimental or comparison subjects. The research associates administered most of the measures; the WAIS-R was administered by licensed clini-
cal psychologists. Research associates completed the tracking form once a month on all clients. It should be noted that the research associates were blind as to the content and coding of both the videotaped interaction and the parent interviews. The parent interviews were administered by licensed clinical social workers or the researcher. The great majority of these measures were administered at TWTC. Some measures were administered during home visits with women who had recently delivered or were otherwise unable to come to TWTC.

Infants' developmental evaluations were completed at TWTC or the NAPARE Developmental Clinic. Developmental evaluations were completed by developmental psychologists and/or an occupational therapist.

Research associates scheduled mother-child interaction measures to be completed by the researcher at TWTC. After the video session with the mother and infant, conducted when the infant was 12 months of age, the researcher met with the mother and interviewed her using the WMCI while the research associate cared for the infant.

**Administration of the PCERA**

The PCERA was utilized to code videotapes of client and control subjects using a videotape protocol established for this project. Mothers and their infants were videotaped at one week, one month, three months, six months, nine months, 12 months, 18 months, 24 months, 30 months, and 36 months.
The project staff received training in videotaping and processing tapes by a clinical psychologist using the methods developed for the Ounce of Prevention Fund Developmental Program (Bernstein, et al., 1991; Bernstein, 1992; Bernstein, Percansky & Wechsler, in press). During each taping session, subjects were videotaped for 20 minutes. Mothers were asked to interact with their infant as they performed caretaking (feeding, diaper changes) or did "whatever you do at home." For purposes of this study, only the second five-minute segment of each videotaped interaction was coded using the PCERA.

A primary objective of the videotape protocol was to make subjects feel as positive as possible about the process. To this end, the room used for the videotaping was painted royal blue, a color found to be flattering on videotape to African-American skin hues. It was also discovered that a minimum of light on the subjects, but light behind the camera produced the most optimal images. The videotaping room was furnished with a small sofa, end table, and lamp at one end. Tissues and baby wipes were positioned on the table. Next to the sofa was a four by six foot blue floor mat. A small floral rug covered part of the worn beige carpeting in the room adjacent to the sofa and mat. On the mat was a crate filled with the following toys: three infant-toddler board books, several rattles, a three-shaped sorter, a small plastic car, pop beads, a mirror, and
a set of nesting cups. A camcorder (Panasonic OmniMovie PV-720) was on a low tripod, and a television (JVC AV-2750S) and two video cassette recorders (JVC HR-DX42U) for viewing and recording tapes were located directly across the room from the sofa. The remainder of the room was furnished with a desk, two chairs, a metal cabinet for storing videotapes, and bookshelves.

The videotape protocol proceeded as follows. Clients signed a video release form as part of their agreement to be enrolled in the NAPARE NIDA research project (Appendix B). When appointments for videotaping were made by one of the research assistants, subjects were told that the researcher was interested in mother-child interactions and that they would be videotaped using the schedule detailed above. When subjects came to the project for the initial videotape session, that usually occurred in conjunction with the collection of other research data, they were greeted by the research associate who coordinated the data collection. They waited in a room furnished with toys and baby equipment. All staff members wore name tags. The researcher introduced herself to clients and stated:

We are interested in how mothers and babies interact doing normal, every day activities. We will be videotaping you and the baby at one week, one month, etc. When your baby is a year old we will make a copy of the videotape for you to keep. This way you will have a record of your baby's first year. Most people really look forward to receiving the videotape. Please do whatever you would be doing if you were at home. You can feed or change your baby or do whatever you like. I know it is sometimes hard to act natural when
you are being videotaped, but most people are soon able to forget that the camera is here.

Identifying information was also collected before the videotaping began. The explanation given above was repeated for the first few sessions until subjects were familiar with the routine.

In the great majority of cases the only people in the room consisted of the researcher, the client, and her infant. On several occasions, both at the center and during home visits, when there was no alternative, mothers were videotaped with more than one child present. The researcher conducted the vast majority of the videotape sessions. Three research associates were also trained in the protocol and completed videotape sessions when the researcher was not available. A small percentage of sessions were conducted during home visits for clients who were either unwilling or unable to come to TWTC for research. For example, one woman, who left TWTC residential program abruptly, stated that she was too embarrassed to return. It was arranged for her to be videotaped with her child at NAPARE headquarters.

During the taping, those operating the camcorder (the researcher and research associates) made as few comments as possible. If a subject requested, and/or if the child approached the camera, we responded in a way that was meant to put the client at ease, but we did not distract the subject from interaction with her child by encouraging further conversation. At the conclusion of the twenty-
minute videotaping session, the experimental clients re­viewed the videotape with the researcher using techniques adapted from Bernstein (1992), Bernstein, et al. (1991), and McDonough (1989). Comparison subjects who expressed an interest in seeing the videotape were given an opportunity to do so. Rather than processing the tape with them, howev­er, the researcher made "small talk" comments meant to put them at ease.

**Administration of the WMCI**

Following the video session at 12 months, the mother was interviewed without her infant present by the researcher using the WMCI. The interview was conducted in the same room as the video session. The mother sat on the small sofa, and the researcher sat on a chair next to her with the tape recorder on the end table. The interview was recorded following the protocol established by Zeanah et al. (1986) and Zeanah et al. (1993).

**Data Analyses**

**Research Question 1**

Background variables were systematically examined to ascertain possible differences in the addicted women and the comparison group of similar, but non-addicted women. These variables were measured through the use of the ABLE, AAPI, BDI, BPS, MDECAS, Maternal History Interview, SCL-90-R, and WAIS-R listed above in Table 2. These instruments were administered at intake, or shortly thereafter. The vari-
ables selected from these instruments that were used to address research question 1 are listed in Table 3.

Table 3

**Background Variables for Treatment and Comparison Mothers**

<table>
<thead>
<tr>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE Language grade level</td>
</tr>
<tr>
<td>ABLE Math grade level</td>
</tr>
<tr>
<td>Bates Depression Index</td>
</tr>
<tr>
<td>Rosenberg Self-Esteem Scale</td>
</tr>
<tr>
<td>SCL-90-R Psychiatric Symptoms</td>
</tr>
<tr>
<td>WAIS-R IQ</td>
</tr>
<tr>
<td>BPS/Maternal History Interview</td>
</tr>
<tr>
<td>Employment status</td>
</tr>
<tr>
<td>DCFS involvement</td>
</tr>
<tr>
<td>Separation from children</td>
</tr>
<tr>
<td>Maternal substance abuse</td>
</tr>
<tr>
<td>Paternal substance abuse</td>
</tr>
<tr>
<td>Sibling substance abuse</td>
</tr>
<tr>
<td>Loss to violent death</td>
</tr>
<tr>
<td>Experienced domestic violence</td>
</tr>
<tr>
<td>Experienced physical abuse</td>
</tr>
<tr>
<td>Experienced sexual abuse/rape</td>
</tr>
<tr>
<td>AAPI</td>
</tr>
<tr>
<td>Inappropriate expectations</td>
</tr>
<tr>
<td>Empathy</td>
</tr>
<tr>
<td>Corporal punishment</td>
</tr>
<tr>
<td>Role Reversal</td>
</tr>
<tr>
<td>MDECAS developmental milestones</td>
</tr>
<tr>
<td>Smile</td>
</tr>
<tr>
<td>Crawl</td>
</tr>
<tr>
<td>Sit</td>
</tr>
<tr>
<td>Pull up</td>
</tr>
<tr>
<td>Walk</td>
</tr>
<tr>
<td>First words</td>
</tr>
<tr>
<td>Potty trained</td>
</tr>
<tr>
<td>Obey &quot;no&quot;</td>
</tr>
</tbody>
</table>

Chi Square procedures were performed on the categorical measures and t-tests were used to measure differences on the continuous measures between the treatment mothers and the non-addicted comparison mothers.
Research Question 2a

The relationship between mothers' recovery status and their representations of the relationship with their infants was explored by performing Pearson Product-Moment correlations among 5 measures of recovery and the 13 scales and affective tone indicators of the WMCI. As noted above, several different measures were used to measure the mother's status in recovery in an attempt to overcome the difficulties inherent in any single measure. Because the ASI measures drug use only in the past 30 days, clients were also asked about the number of days they used drugs during the past six months, and this information was recorded. A third measure of recovery utilized was the number of days of treatment during the infant's first year. It is important to note that some of the women were enrolled in a variety of residential and outpatient treatment programs during their infants' first year. Therefore, all days of treatment were not equivalent. Women enrolled in residential treatment programs, such as the residential rehabilitation unit at TWTC, participated in a highly structured program. The daily schedule began with meditation at 6:45 a.m. and ended with reflections at 9:15 p.m. It included peer and 12-step meetings, group therapy, exercise, parenting classes, participation in children's day care classes, adult education, life skills training, and recreational activities. Weekends were less structured, but attendance at Alcoholics Anonymous
(AA) meetings, meditation and reflection groups, and family sessions was required. Outpatient treatment programs typically offered five hours of programming daily from three to five days a week. Outpatient programs focused primarily on treatment, but the reduced number of hours available meant less time spent in group and individual treatment sessions as well as all other activities. In addition, women in outpatient treatment programs often arrived late and/or left early while still receiving credit for a day of treatment.

Although number of days of treatment may indicate recovery status on one level, it is also possible for women to attend treatment without full engagement in the recovery process. Therefore, a clinical judgment of recovery status for each subject was determined by the client’s social worker/research associate utilizing the information from the NAPARE Tracking Form. Clients received a monthly rating of level of treatment as follows: (1) fully engaged in treatment (75-100 percent); (2) partially engaged (40-74 percent); (3) barely engaged (1-39 percent); (4) dropped out by choice; (5) completed; (6) none; (7) not applicable; (8) multiple; or (9) asked to leave. For this cohort, this information was recoded to obtain a Likert-type scale that ranked clients from one to four. Clients received a monthly rating of: (1) dropped out/asked to leave/no treatment compliance; (2) minimal treatment participation; (3) partial treatment participation; or (4) full treatment participa-
Women who completed residential or outpatient treatment at some point during their infants’ first year, but entered a recovery home or attended frequent AA meetings in their communities, often received monthly ratings of (3) or (4) during months when they did not attend a formal treatment program. On the other hand, women who attended treatment, but failed to participate in group sessions, complete assignments, or otherwise comply with program expectations, might receive monthly treatment level ratings of (1) or (2). Therefore, days of treatment and level of treatment could be similar or dissimilar for individual women. The mean scores for level of treatment were calculated at 6 and 12 months.

It was also planned to address this question by analyzing the frequency of positive urine toxicologies from birth to 12 months, but the unavailability of the women for urine drops at consistent data collection points, and/or inconsistent use of urine drops in the various treatment programs prohibited any meaningful use of this data set. Measures of recovery are listed in Table 4.

Table 4

Maternal Measures of Recovery

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction Severity Index (ASI)</td>
<td></td>
</tr>
<tr>
<td>Days of drug use 6-12 months</td>
<td></td>
</tr>
<tr>
<td>Treatment days 0-12 months</td>
<td></td>
</tr>
<tr>
<td>Recovery level I (0-6 months)</td>
<td></td>
</tr>
<tr>
<td>Recovery level II (0-12 months)</td>
<td></td>
</tr>
</tbody>
</table>
The WMCI Interview was utilized to classify the mothers' representations of their infants according to the three major categories discussed earlier (balanced, disengaged, distorted). The classifications are based on information gained from analysis of the six qualitative scales, two content scales, and five affective tone indicators of the WMCI. The tape-recorded interviews were transcribed by the project secretary. Interviews were coded by the researcher and by an experienced addictions counselor and child and family therapist, using the WMCI rating scales and classifications (Zeanah et al., 1993). Ratings on the five point Likert-type scale were considered to be in agreement if they were within one point. One point differences were averaged and consensus on disagreements greater than one point was reached during a conference between the two raters. Within one point reliability between the two raters of 93.09 percent was achieved on the WMCI scales, affective tone, and classifications (exact reliability was found to be 75.53 percent). The scales, affective tone, and relationship classifications of the WMCI are listed in Table 5.
Table 5

Working Model of the Child Interview Scales, Affective Tone, and Classification of Relationship

---

**Qualitative Scales**

1. Richness of perception
2. Openness to change
3. Intensity of involvement
4. Coherence
5. Caregiving sensitivity
6. Acceptance

**Content Scales**

7. Infant difficulty
8. Fear for safety

**Affective Tone**

9. Joy
10. Anger
11. Anxiety
12. Indifference
13. Frustration

**Classification of Relationship**

Balanced (full, strained, restricted)
Disengaged (impoverished, suppressed)
Distorted (distracted, confused, role-reversed, self-involved)

---

**Research Question 2b**

The relationship between mothers’ recovery status and mother-infant interaction was explored by performing Pearson Product-Moment Correlations among the recovery variables listed above in Table 4 and the six scales and selected variables of the PCERA.

Positive and negative affect expressed by the mother,
the infant, and together in the dyad was assessed by coding a five-minute videotaped segment of mother-child interactions. The PCERA (Clark, 1985) was selected for coding the videotapes. Training in the PCERA was provided by a child development specialist who had extensive experience in training with this measure. Thirty hours of training was provided for the researcher and two coders, both masters degree candidates at Erikson Institute. The training sessions were conducted using project videotapes for each of the age groups targeted for videotaping. Reliability of 89.5 percent agreement was achieved by the researcher and 88.2 percent agreement for the primary coder.

Tapes were prepared for coding by selecting the second five-minute episode of each 20-minute videotape. Master coding tapes consisting of ten five-minute segments were prepared with a random selection of client subjects and comparison subjects on each tape. Identification numbers were disguised so that coders would remain blind as to the identity of client and comparison subjects. Each tape was identified by the identification number and the date of the segment that appeared on the screen throughout the taping.

The videotapes were then analyzed by an associate, who completed her M.Ed. in child development at Erikson Institute during the course of this project. Reliability checks on 20 percent of the tapes were done by the child development specialist and the researcher. Because the child
development specialist was blind to the identity of the subjects, only her reliability checks which achieved 84 percent were used for purposes of this study.

The six scales of the PCERA and selected variables chosen a priori to measure the affective quality of the mother-child relationship were analyzed. Two scales reflect maternal positive and negative affect (Scale I. maternal affective involvement and responsiveness and Scale II. maternal negative affect and behavior). Two scales reflect child positive and negative affect (Scale III. infant organization, attentional and social skills and Scale IV. infant disregulation, irritability and negative behavior). Two scales reflect dyadic positive and negative affect (Scale V. dyadic mutuality and reciprocity and Scale VI. dyadic tension). In addition, single variables specifically targeting positive and negative affect in the mother, infant, and dyad were analyzed. Each scale and variable yields a numerical score between 1 and 5. These variables are listed in Table 6.
Table 6

Parent-Child Early Relational Assessment Scales and Maternal Infant, and Dyadic Variables

Maternal Scales

I. Maternal affective involvement and responsiveness
II. Maternal negative affect and behavior

Maternal Variables

Expressed positive affect
Enjoyment/pleasure
Expressed negative affect
Displeasure

Infant Scales

III. Infant organization, attentional, and social skills
IV. Infant disregulation, irritability, and negative behavior

Infant Variables

Expressed positive affect
Happy/pleasant
Expressed negative affect
Irritable/angry
Sober/serious

Dyadic Scales

V. Dyadic mutuality and reciprocity
VI. Dyadic tension

Dyadic Variables

Enthusiasm/joie de vivre
Flat/empty/constricted

Research Question 3a

Treatment mothers were divided into two groups on the basis of their recovery level II scores. Mothers with mean
scores >3 were designated "high recovery," and mothers with mean scores <2.5 were designated "low recovery" mothers (no mothers had scores >2.5 but <3). Analysis of Variance (ANOVA) was used to compare high recovery, low recovery, and comparison group mothers' mean scores on the 13 scales and affective tone indicators of the WMCI and post-hoc tests were used to determine differences between any two groups when significance was found. The Chi Square procedure was used to determine if there were differences among the three groups on the overall classification of the relationship (balanced, disengaged, distorted).

Research Question 3b

ANOVA tests were used to investigate whether there were differences among high recovery, low recovery, and comparison mothers in the affective quality of the mother-infant interaction as measured by the PCERA scales and selected variables listed in Table 6 above. Post-hoc tests were used to determine differences between any two groups when significance was found.

Exploratory Research Question 4a

The Bayley mental and motor scales of the 12-month-old infants were compared by the ANOVA test to examine possible differences in development between the infants of high recovery, low recovery, and comparison mothers.

Exploratory Research Question 4b

Pearson Product-Moment correlations were performed to
ascertain possible relationships between the developmental levels of the 12-month-old experimental infants and their mothers' recovery status using the measures listed in Table 4 above.

**Exploratory Research Question 5**

Pearson Product-Moment correlations were performed to assess possible relationships between the six scales of the PCERA and the 13 scales and affective tone indicators of the WMCI.

**Case Study Material**

Two cases were selected to provide an in-depth illustration of the findings from this study. One case was of a mother who has had minimal treatment compliance and her infant, and the second was of a mother who has had full treatment compliance since delivery and her infant. Because of the complexity of the lives of these two women, a fine grained qualitative analysis of these women was done in an effort to more clearly illustrate the findings of the study at hand.

**Limitations of the Study**

The following limitations are recognized:

1. The subjects in this sample were self-selected to some degree by virtue of their accessibility to the researcher. Women with more days of treatment and higher levels of recovery were overrepresented. Therefore, the generalization of the findings of this study is limited.
2. The sample was relatively small.

3. There is data missing from some of the intake measures used to compare the treatment and comparison women. Fewer low recovery women were available to complete the WMCI at the 12 months phase of the study.

4. There were some significant differences between the treatment and comparison women with respect to their age and the number of children they had.

5. No attempt was made to investigate whether recovery status was a proxy for other background variables related to parenting. Therefore, a causal relationship between recovery status, maternal representations, and mother-infant interactions cannot be assumed.

6. The PCERA scales used for this study were normed on a middle class sample, although the setting and age of the infants matched that used in this study.

7. Recovery status of the treatment mothers was based on the clinical judgment of social workers and research associates using a measure developed by the project investigators. There is a need for the development of a more refined instrument measuring recovery status that can be subjected to carefully designed reliability and validity studies.

8. The WMCI has not been subjected to validity or reliability studies therefore limiting the conclusions regarding parental representations.
CHAPTER IV
RESULTS AND INTERPRETATION

Introduction

Prior to presenting an analysis of the results related to each of the five research questions addressed in this study, a brief review of the measures selected to measure recovery status and the procedures used to score the two major dependent measures (the WMCI and the PCERA) is presented.

Recovery Measures

As noted in Chapter III, the relationship between the affective quality of maternal representations and mother-infant interactions (as measured by the WMCI and the PCERA) and mothers' recovery status was examined through five measures of recovery: the ASI Composite Drug Severity Index, the number of days of cocaine use 6-12 months, the number of days of treatment 0-12 months, the recovery level 0-6 months (recovery level I), and the recovery level 0-12 months (recovery level II). Days of treatment and both recovery level I and recovery level II were found to be intercorrelated at highly significant levels (p < .01). These findings are presented in Table 7.
Table 7

Recovery Measures Intercorrelation Matrix

<table>
<thead>
<tr>
<th></th>
<th>ASI Drug Severity</th>
<th>Coc. Days 6-12 M.</th>
<th>Treatment Days 0-12 M.</th>
<th>Recovery Level 0-6 M.</th>
<th>Recovery Level 0-12 M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASI Drug Severity</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coc. Days 6-12 M.</td>
<td>.1601</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Days 0-12 M.</td>
<td>.3513</td>
<td>-.1535</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recovery Level 0-6 M.</td>
<td>-.0107</td>
<td>-.1251</td>
<td>.7108**</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>Recovery Level 0-12 M.</td>
<td>.1101</td>
<td>-.0616</td>
<td>.8872**</td>
<td>.8541**</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

** p < .01 (two-tailed)
No significant relationships were found between the ASI or the number of days of cocaine use mothers reported when their infants were between 6 and 12 months of age and the WMCI and PCERA. A close examination of the individual ASI interviews and ratings provided some explanations for these negative and unexpected results. First, there was a considerable amount of missing data. Of the 28 mothers who comprised the treatment group, 21 (75 percent) had ASI interviews at 12 months. Responses to the supplementary question asking for the days of drug use since the last administration of the ASI (six months post delivery) were omitted if the ASI had not been administered at six months. The ASI measures severity on a scale from .000 (no need for further treatment) to 1.000 (extreme need for further treatment). The 21 ASI drug severity ratings for this cohort were found to be extremely low (mean ASI Drug Severity: .0933; SD: .08). There are a number of explanations for these findings. When women were currently enrolled in treatment programs, interviewers and clients may have interpreted this question as meaning there was no further need for treatment at the point of data collection. In addition, clients not in treatment may not have provided reliable information about their drug use. In a study that analyzed inconsistencies of self-reported drug use data based on the National Household Survey of Drug Abuse and the National Longitudinal Survey Youth Cohort (Harrison, Haaga, & Richards, 1993), it
was found that recent pregnancy was associated with an increased likelihood of drug use denial. Since the ASI interviews only ask for information regarding the client's experiences during the past 30 days, it had been anticipated that this measure might be of limited use as a measure of recovery. The authors of the ASI responded to criticism of the 30-day period in a review of the measure's use since it was introduced in 1980 (McLellan, et al., 1992). Because the 30-day period was established as a reliable indication of patient status at intake, the same interval was used to assess follow-up status for the purpose of pre- and post-treatment comparisons. The authors acknowledged that the use of this 30-day period may seriously over or underrepresent the true severity of a client's problem and encouraged clinicians to develop a continuous measure of severity. It is interesting to note that in this study a separate index not included in the composite score, the interviewer's assessment of severity, was often markedly different from the composite ASI severity index. This data was not included in the ASI composite index nor analyzed for this study because the authors did not intend the interviewer severity ratings to be used as an outcome measure. Instead these ratings were intended only for the convenience of clinicians who wished to make a general profile of a patient's problem status for initial treatment planning and referral. However, researchers at a recent technical review meeting of the
NIDA Perinatal Twenty Projects noted that ASI interviewer ratings were more informative than the ASI composite index (Chandler, personal communication, July 28, 1994).

**Days of Treatment and Recovery Levels**

Data was collected on the number of days of outpatient and residential treatment for each client. For this study the total number of days of treatment from birth to 12 months was used as a measure of recovery. For this group of mothers, the mean number of treatment days was 146.22 (SD: 109.93, range: 0 - 365 days). Research associates completed monthly tracking forms on each client that included information on type of program, level of treatment, living situation, drug use, crises, custody of children, employment, and education or training status. As discussed in Chapter III, the level of treatment was recoded to obtain a four-point scale of engagement in treatment: (1) none, (2) barely, (3) partially, and (4) fully. Means were obtained for birth to 6 months (mean: 3.07, SD: .98, range: 1-4), and for birth to 12 months (mean: 2.77, SD: .92, range: 1-4). As noted in Table 7, the three variables yielded by the tracking forms were correlated with one another at highly significant levels. The Pearson Product-Moment correlation between treatment days and recovery level 0-6 months was $r = .7108$. The correlation between treatment Days and recovery level at the end of 12 months was $r = .8872$, and the correlation between recovery level 0-6 months and recovery level 0-12
was $r = .8541$. An earlier study (Condelli & Hubbard, 1994), found that the length of time clients spent in treatment in therapeutic communities, but not in other residential communities, correlated with reduced drug use and criminal activity and increased employment. For each month that clients stayed in the program, there was a six percent reduction in the odds of their using drugs during the follow-up year.

**Scoring the WMCI and the PCERA**

The WMCI and the PCERA measures were used to address research questions 2a, 2b, 3a, 3b, and 5. Before examining the results related to these research questions, it may be helpful to review the way the two measures are scored. The PCERA was designed to systematically examine mother-child interactions by coding a five-minute segment of videotape. The procedure yields 65 variables which are loaded onto six scales. The variables may also be examined individually. The WMCI consists of a tape recorded interview with the mother and yields qualitative and content scales and measures of affective tone as well as an overall classification of the representation. Both the PCERA and the WMCI use a five-point Likert-type scale. In order to avoid confusion in interpreting results, it should be noted that variables measuring negative qualities are treated differently on the two measures. On all of the PCERA variables and rating scales a higher score indicates either the presence of positive qualities (such as enjoyment) or the lack of nega-
tive qualities (such as displeasure). PCERA scores of one and two indicate areas of concern, a score of three indicates some concern, and scores of four and five represent areas of strength. Therefore, a low score on a variable such as anger, for example, indicates the presence of anger and a high score indicates the lack of anger. The WMCI consists of six qualitative scales, two content scales, and five measures of affective tone that are rated from one (none) to five (extreme). It should be noted that the two content scales (infant difficulty and fear for safety) and four of the five affective tones (anger, anxiety, indifference, and frustration) are negative measures. For these items a higher score reflects increased negative content and affect. On the other hand, higher scores on the qualitative scales and the affective tone, joy, are positive indicators.

Next, is a discussion of the results related to each of the research questions. Research question 1 deals with the background characteristics at intake of the 28 treatment women and 34 comparison women who form the cohort for this study. In addition, a drug use profile of the women in treatment at intake is included here. Research questions 2a and 2b are directed at a comparison of the treatment mothers' measures of recovery using the PCERA and the WMCI as dependent measures. Research questions 3a and 3b were designed to explore differences on the PCERA and the WMCI measures among high recovery, low recovery, and comparison
mothers. Research questions 4a and 4b were crafted to consider the infants' developmental levels at 12 months of age and the relationship between their development and mothers' recovery status. Question 5 was designed to address the relationship between the PCERA and the WMCI measures for the entire cohort of treatment and comparison mothers used in the study.

Results and Discussion Related to Research Question 1

Drug Use Profile of Treatment Group at Intake

In addition to a discussion of the background characteristics of the treatment and comparison women at intake, the results reported in this section will profile the self-reported drug use of the treatment group at intake. Table 8 refers to age of onset of primary and secondary drugs and drug use in prior pregnancies.

An examination of the data revealed that 86.4 percent of these women considered cocaine to be their primary drug. The remainder were about equally divided between marijuana, PCP (Phencyclidine), and stimulants. Alcohol was reported to be the secondary drug of 40.9 percent of the women, marijuana was reported to be the secondary drug of 40.9 percent, and cocaine or heroin were reported to be the secondary drug for the remaining women. The mean age at which these women began to use any drug was 15.68 years. They began to use what is presently their secondary drug at a
Table 8
Drug Use Profile of Treatment Group at Intake

<table>
<thead>
<tr>
<th>Variable</th>
<th>(n = 22 unless noted)</th>
<th>Percent</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age began drug use (years)</td>
<td></td>
<td>15.68</td>
<td>3.29</td>
<td></td>
</tr>
<tr>
<td>Age of first use of primary drug</td>
<td></td>
<td>21.72</td>
<td>4.47</td>
<td></td>
</tr>
<tr>
<td>Age of first use of secondary drug</td>
<td></td>
<td>17.21</td>
<td>4.29</td>
<td></td>
</tr>
<tr>
<td>Longest period of abstinence in past two years (months) (n = 21)</td>
<td></td>
<td>3.10</td>
<td>4.71</td>
<td></td>
</tr>
<tr>
<td>Primary Drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td></td>
<td>86.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCP</td>
<td></td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulants</td>
<td></td>
<td>4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Drug</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td>40.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td></td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td></td>
<td>40.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td></td>
<td>9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Use in prior pregnancy (n = 19)</td>
<td></td>
<td>73.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
mean of 17.21 years. The mean age for first use of what is presently their primary drug was 21.72 years. As noted in Chapter III, the mean age of women in this study at intake was 29.29 years. Thus, the typical woman had been using her primary drug for almost eight years at the time she sought treatment and was recruited for participation in the study at hand. Women were also asked about the consistency of their drug use, and 3.1 months was reported as the mean period of abstinence in the past two years. When asked whether they used drugs during previous pregnancies, 73.7 percent of the women responded affirmatively. A number of researchers have investigated drug and alcohol use overlap in clients seeking treatment. In a review of several national data sets Norton and Noble (1987) concluded that about two-thirds of those abusing drugs also abuse alcohol. Rush and Ekdahl (1990) found a 39 percent overlap of alcohol and drug problems in addiction-specific programs, and Clayton (1986) found use of alcohol with other primary drugs to be as high as 78 percent. Weisner (1992) found that 84 percent of the clients in drug treatment programs abused two or more drugs, and Miller, Gold, and Klahr (1990) found that as many as 89 percent of cocaine addicts were also dependent on alcohol and other drugs. These findings are affirmed by Lester and Tronick (1994) who stated that the next generation of this research requires recognition that the problem of maternal drug use is one of cocaine/polydrug use, not of
Overview of Treatment and Comparison Groups

The demographic data discussed in Chapter III revealed that the treatment and comparison women were both subsets of the larger population of disadvantaged, inner-city mothers who rely on public aid for support. The comparison women were significantly younger and had fewer children than the drug-using women. Two previous studies of risk factors associated with disadvantaged, minority, and pregnant drug-using women and drug-free controls found similar significant age and parity differences (Fritz et al., 1993; Hagan, 1987). The findings of a study that analyzed differences in drug-using women with and without treatment histories (Faupel & Hanke, 1993) may explain why it is difficult to study drug-using women who are younger and have fewer children. This study found that drug-using women without treatment histories were younger, had fewer children, began drug use at a later age, and had fewer lifetime arrests. Faupel and Hanke suggested that early onset of drug use was associated with greater lifestyle problems that then caused women to seek treatment. Because drug-using women typically do not seek treatment until their mid to late twenties and most research on this population has been conducted on women seeking treatment, the younger women have not been available as a research population at a similar age as the comparison women.
Treatment and Comparison Group Maternal Measures at Intake

The results of intake measures administered to both treatment and comparison women are detailed in Table 9.

Depression. On the Beck Depression Index (BDI) (Beck and Steer, 1987), the means for both treatment women (16.40) and comparison women (14.46) were in the mild to moderate range (10-18) for depression at intake. Although there was no statistical difference found between the groups, it should be noted that the authors state that a score greater than 15 may indicate possible depression. The BDI was normed on six population samples, of which two were alcohol and heroin abusers. The means for the alcoholic sample (13.88) and the heroin sample (13.17) were lower than the means for both groups in this study. In a previous study of substance-abusing pregnant women using the BDI, it was found that over 50 percent were moderately to severely depressed (Burns, Melamed, Burns, Chasnoff & Hatcher, 1985). Another study found that drug-abusing women whose children were in foster placement had higher scores on the BDI than drug-abusing women with custody of their children (Regan, Rudrauff, & Finnegan, 1981).

Self-esteem. A significant difference (p < .05) was found between the means for the treatment women (25.82) and comparison women (29.08) on the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The mean for females based on an urban Chicago sample was 34.52. In a study of maternal self-
Table 9

Background Characteristics of Treatment and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment</th>
<th>Group</th>
<th>Comparison</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Bates Depression Index</td>
<td>16.40</td>
<td>12.57</td>
<td>10</td>
<td>14.46</td>
<td>7.20</td>
</tr>
<tr>
<td>Rosenberg Self-Esteem Scale</td>
<td>25.82</td>
<td>6.52</td>
<td>17</td>
<td>29.08</td>
<td>3.85</td>
</tr>
<tr>
<td>SCL-90-R Psychiatric Symptoms</td>
<td>58.06</td>
<td>11.94</td>
<td>16</td>
<td>63.12</td>
<td>7.58</td>
</tr>
<tr>
<td>WAIS-R IQ</td>
<td>79.93</td>
<td>7.46</td>
<td>14</td>
<td>83.04</td>
<td>9.45</td>
</tr>
<tr>
<td>ABLE Language (grade level)</td>
<td>7.30</td>
<td>2.28</td>
<td>11</td>
<td>6.31</td>
<td>2.52</td>
</tr>
<tr>
<td>ABLE Math (grade level)</td>
<td>6.58</td>
<td>1.83</td>
<td>12</td>
<td>7.24</td>
<td>2.35</td>
</tr>
<tr>
<td>Percent</td>
<td>N</td>
<td></td>
<td>Percent</td>
<td>N</td>
<td>X2 value</td>
</tr>
<tr>
<td>DCFS Involvement</td>
<td>77%</td>
<td>26</td>
<td>0%</td>
<td>21</td>
<td>28.12</td>
</tr>
<tr>
<td>Separated from 1 or more children</td>
<td>73%</td>
<td>26</td>
<td>10%</td>
<td>21</td>
<td>18.98</td>
</tr>
<tr>
<td>Maternal Substance Abuse</td>
<td>33%</td>
<td>27</td>
<td>9%</td>
<td>34</td>
<td>5.72</td>
</tr>
<tr>
<td>Paternal Substance Abuse</td>
<td>63%</td>
<td>26</td>
<td>39%</td>
<td>33</td>
<td>3.93</td>
</tr>
<tr>
<td>Sibling Substance Abuse</td>
<td>63%</td>
<td>27</td>
<td>33%</td>
<td>33</td>
<td>5.23</td>
</tr>
<tr>
<td>Loss to Violent Death</td>
<td>19%</td>
<td>26</td>
<td>24%</td>
<td>34</td>
<td>.16</td>
</tr>
<tr>
<td>Experienced Domestic Violence</td>
<td>27%</td>
<td>26</td>
<td>21%</td>
<td>33</td>
<td>.26</td>
</tr>
<tr>
<td>Experienced Physical Abuse</td>
<td>61%</td>
<td>28</td>
<td>12%</td>
<td>34</td>
<td>16.43</td>
</tr>
<tr>
<td>Experienced Sexual Abuse or rape</td>
<td>54%</td>
<td>28</td>
<td>29%</td>
<td>34</td>
<td>3.72</td>
</tr>
</tbody>
</table>

* p<.05, ***p<.001
esteem and prenatal attachment in high risk pregnancy, Kemp and Page (1987) used the Rosenberg Self-Esteem Scale and found that women experiencing a high risk pregnancy reported statistically significant lower self-esteem than women experiencing a normal pregnancy. Degen, Myers, Williams-Petersen, Knisely and Schnoll (1993) measured self-esteem through the use of the Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck & Hoberman, 1985) and found that pregnant drug users reported lower self-esteem than nonusers. They found fewer differences between the two groups than expected and drug users did not differ from nonusers in overall level of support or pregnancy anxiety. In addition to the difference in self-esteem, there was also a tendency for higher depression and withdrawal among the drug-using pregnant women. Others have identified low self-esteem as a significant issue for persons addicted to drugs (Chasnoff, 1988; Fiks, Johnson & Rosen, 1985; Regan et al., 1987; Weissman, Paykel & Klerman, 1972). Degen et al. (1993) hypothesized that self-esteem measures the woman's internal social support and that low self-esteem may be a cause of drug use in women. A study of low-income mothers (Burns, Doremus & Potter, 1990) found that mothers who participated in activities outside the home had higher Rosenberg self-esteem scores. Working with addicted mothers, Escamilla-Mondanero (1977) found that these women were unable to name activities they enjoyed other than using
drugs and had low self-esteem.

**Psychiatric symptoms.** There was no significant difference found between the treatment women and the comparison women in psychiatric symptoms as measured by the SCL-90-R Global Severity Index (GSI). A T-score of 63 or greater on the GSI is considered to be an indication of clinical significance (Derogatis, 1977). The mean score for comparison women (63.12) met this definition while the GSI for treatment women (58.06) was slightly lower. Similarly, Neuspiel and Hamel (1992) found no differences in psychiatric symptoms between cocaine-using and drug-free postpartum women, but both groups of women had high levels. Other studies have found that postpartum cocaine-using women have had significantly greater rates of psychiatric hospitalization than drug-free women (Fritz et al., 1993). Miller and Resnick (1993) addressed the relationship between substance use and mental illness in pregnancy through a retrospective study of the hospital charts of pregnant patients in Oregon admitted for psychiatric care between 1982 and 1988. They found that 63 percent of the women admitted to the use of nonprescribed psychoactive drugs during their pregnancy, meeting the DSM-III-R criteria for substance abuse. These investigators also found that the dually diagnosed patients were more likely to be single, not living with family members, and received less prenatal care than the women with psychiatric diagnoses who were not substance abusers.
IQ and educational achievement. No significant differences were found between either the WAIS-R IQ scores or the ABLE reading and math grade levels of the treatment and comparison women. However, IQ scores in both groups of women were at least one standard deviation below the mean and lower than those reported by Haller (1991) in a group of similar drug-abusing pregnant women. Both the treatment and comparison women in the present study completed approximately 12 years of schooling; however, their language and math grade levels were considerably lower than expected given these 12 years of education. Other studies have found significant differences in educational attainment between disadvantaged, minority, pregnant drug-using women and drug-free comparison women that were not found in the present study (Fritz et al., 1993; Hagan, 1987).

Child custody. An examination of the variables related to the current status of previous children (among women with children), history of familial substance abuse, and the mother's experience of violence and abuse revealed some significant findings. Although comparison mothers were significantly younger than treatment mothers and had fewer children (see Table 1 in Chapter III), there were significant differences found between the members of the two groups with children in addition to the targeted infant. Among the treatment mothers with previous children, 77 percent were involved with the Department of Children and Family Services
DCFS) for neglect and/or abuse charges. None of the comparison mothers with previous children were involved with DCFS. A large percentage (73 percent) of the treatment women were physically separated from one or more of their older children, while only 10 percent of the comparison women were separated from a child.

Family history of substance abuse. There were significant differences (p < .05) found between the two groups related to familial patterns of substance abuse. Among treatment women, 33 percent had mothers who abused drugs and/or alcohol, but only 9 percent of comparison women had mothers who abused substances. While 39 percent of comparison mothers had fathers who abused drugs and/or alcohol, 63 percent of treatment mothers' fathers abused substances. Similarly, 63 percent of treatment mothers' siblings abused substances, while 33 percent of comparison mothers' siblings did so. Fritz et al. (1993) also found that substance abusers reported significantly higher rates of substance abuse by their primary caregivers (p < .001) than did nonusers. In a study of the background characteristics of drug-addicted women during intake for outpatient treatment, similar patterns of familial substance abuse were reported to those found in the present study (Hagan, 1987). Compared to a control group of non-addicted women with 35 percent reporting familial alcoholism, 67 percent of the addicted women reported alcoholism in one or both of their parents.
Violence and abuse. Treatment women did not report a significantly different percentage of loss of an important person to violent death (19 percent) than comparison women (24 percent) nor did they report differing levels of experiencing domestic violence (treatment: 27 percent, comparison: 21 percent). However, there was a highly significant difference (p < .001) between the percentage of treatment women reporting physical abuse (61 percent) and comparison women (12 percent). Over half (54 percent) of treatment group women reported they had been sexually abused and/or raped compared to less than a third (29 percent) of the comparison group women (p < .05). Hagan (1987) found that 67 percent of drug-addicted women reported that they had been sexually assaulted compared to 15 percent of a control group. Of the sexual assault victims, 75 percent were raped under the age of 16 years, several women had experienced multiple rapes, and 25 percent were raped by a father, brother, or grandfather. Fritz et al. (1993) found that significantly more (p < .001) postpartum women with positive cocaine urine tests experienced physical and sexual abuse before the age of 16 (17.4 percent) than nonabusers (5.8 percent). Regan et al., 1987) found that drug dependent pregnant women had experienced significantly greater rates of physical and/or sexual abuse both as children and as adults than a comparison group of drug-free pregnant women. That study also found that drug-using women with histories of childhood sexual abuse
were more likely to have children placed in foster care.

**Parenting attitudes and knowledge.** Intake measures included an assessment of parenting attitudes (AAPI) and knowledge of development milestones (MDECAS) for treatment and comparison mothers. These findings are reported in Table 10.

The parenting attitudes of treatment and comparison women at intake were compared on the four constructs of the AAPI. There were no differences found between the groups on inappropriate expectations, lack of empathy, and role reversal. On the belief in corporal punishment construct, treatment women were found to be more positive (p < .01) than comparison women. It should be noted that the variance for the comparison group was significantly greater than that of the treatment women as measured by Levene's test for equality of variance. The AAPI provides norms for abusive and non-abusive Black female adults (Bavolek, 1984). On the inappropriate expectations construct, treatment (24.74) and comparison (24.41) women scored higher than non-abusive (23.25) and abusive (22.91) women. In fact their scores were similar to those of the combined normative data for the general, non-abusive adult population (24.51). Treatment (29.00) and comparison (31.03) women's scores on the construct measuring lack of empathy were higher than those for abusive women (28.36) but below those of non-abusive women (32.78). On the construct measuring reversal of parent-
Table 10

Parenting Attitudes and Knowledge of Developmental Milestones of Treatment and Comparison Women at Intake

| Adult Adolescent Parenting Inventory | Treatment Group | Comparison Group | t-value | p *
|-------------------------------------|-----------------|-----------------|---------|-----
|                                     | n = 19 M | SD   | n = 29 M | SD  |       |
| Inappropriate Expectations          | 24.74 | 2.88 | 24.41 | 3.70 | .32  | ns |
| Empathy                             | 29.00 | 5.59 | 31.03 | 6.03 | -1.18 | ns |
| Corporal Punishment                 | 37.47 | 3.95 | 33.07 | 7.17 | 2.44  | .01* |
| Role Reversal                       | 27.68 | 5.24 | 27.62 | 7.38 | .03  | ns |

Maternal Developmental Milestones and Childrearing Attitudes Scale

<table>
<thead>
<tr>
<th>Age (in weeks) an infant should:</th>
<th>n = 18 M</th>
<th>SD</th>
<th>n = 22 M</th>
<th>SD</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smile (4 weeks)</td>
<td>6.06</td>
<td>6.07</td>
<td>8.50</td>
<td>5.44</td>
<td>-1.34</td>
<td>ns</td>
</tr>
<tr>
<td>Crawl (32 weeks)</td>
<td>28.28</td>
<td>5.94</td>
<td>28.27</td>
<td>12.49</td>
<td>.00</td>
<td>ns</td>
</tr>
<tr>
<td>Sit (32 weeks)</td>
<td>30.00</td>
<td>7.48</td>
<td>25.43</td>
<td>7.51</td>
<td>1.93</td>
<td>.06</td>
</tr>
<tr>
<td>Pull up (40 weeks)</td>
<td>37.78</td>
<td>10.23</td>
<td>36.48</td>
<td>11.56</td>
<td>.38</td>
<td>ns</td>
</tr>
</tbody>
</table>
Table 10 (continued)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk (52 weeks)</td>
<td>49.61</td>
<td>11.68</td>
<td>47.73</td>
<td>8.88</td>
<td>.58</td>
<td>ns</td>
</tr>
<tr>
<td>First words (52 weeks)</td>
<td>65.50</td>
<td>22.36</td>
<td>56.82</td>
<td>18.49</td>
<td>1.36</td>
<td>ns</td>
</tr>
<tr>
<td>Potty trained (2 years)</td>
<td>80.53</td>
<td>24.58</td>
<td>81.30</td>
<td>32.15</td>
<td>.08</td>
<td>ns</td>
</tr>
<tr>
<td>Obey &quot;no&quot; (2 years)</td>
<td>71.61</td>
<td>36.35</td>
<td>67.73</td>
<td>38.74</td>
<td>.32</td>
<td>ns</td>
</tr>
</tbody>
</table>

*aLevene's test for equality of variance p = .008; t-test for unequal variance
child family roles, treatment (27.68) and comparison (27.62) women's scores again fell between the norms for abusive women (25.08) and non-abusive women (28.89). The results for these two constructs would seem to indicate that although many of the treatment women are involved with DCFS because of neglect and abuse charges related to their substance abuse, their parenting attitudes were somewhat better than those of the norm group of abusive women. The comparison mothers' similar scores indicated that, while they also scored above abusive mothers, they scored lower than their norm group of non-abusive Black females. The significant difference found between the treatment (37.47) and comparison (33.07) mothers on the belief in corporal punishment construct is somewhat puzzling. Treatment mothers scored better than the combined normative data for the general non-abusive adult population (35.42) while comparison mothers scores were similar to those for abusive mothers (33.40). Perhaps pregnant women entering treatment compensated for their DCFS involvement by being careful not to give the appearance of favoring corporal punishment.

Knowledge of developmental milestones was measured by the MDECAS (Field, 1981). There were no significant differences found between the treatment and comparison women on seven of the eight variables measured; treatment women's responses were closer (30 weeks) to the age at which an infant can be expected to sit alone (32 weeks) than compari-
son women (25 weeks) at a level which approached significance \(p < .06\). Field (1981) used the MDECAS to measure knowledge of developmental milestones among teen and adult Black, lower-income mothers of pre-term and full-term infants at one month. Field's adult mothers of full-term infants (AMTI) were the group most similar to the women in this study for comparison purposes. Whereas the three groups of mothers (treatment, comparison, and AMTI) predicted that their infants would crawl, sit, pull up, walk, be potty trained and obey "no" at earlier than expected ages, treatment and comparison mothers (with the exception of sit) came closer to the expected ages than did Field's AMTI. All three groups predicted that infants would smile and talk later than the expected ages. As the variable most closely identified with affect, it is interesting that both treatment (six weeks) and comparison (eight weeks) mothers predicted that their infants would smile later than expected (four weeks) and later than the mothers in Field's study (five weeks). Escamilla-Mondanero (1977) found that heroin addicted mothers expected their infants to grow up rapidly and be toilet trained by one year. "They also expect their babies to be quiet and not demand 'excessive attention'" (Escamilla-Mondanero, 1977, p. 65). Early expectations for gross motor and self-help milestones and late expectations for affective and language development fits this profile, but applies to both groups of high risk mothers.
Results and Discussion Related to Research Question 2a

The major focus of this study was the attempt to understand whether relationships existed between an addicted mother's recovery status, the internal representation of the relationship with her infant, and observed patterns of mother-infant interactions when the infant was 12 months of age. As noted above, recovery status was measured by five variables: the ASI composite drug index, days of cocaine use between 6 and 12 months, the number of days of treatment between birth and 12 months, the mean recovery level from birth to 6 months (recovery level I), and the mean recovery level from birth to 12 months (recovery level II). Of the 18 treatment mothers participating in the WMCI, ten of these representations were classified as balanced, two as disengaged, and six as distorted. Only one of the balanced representations was classified as balanced-full, five were balanced-restricted, and four were balanced-strained. In summary, most of the relationships classified as balanced were fragile. Balanced-restricted relationships tend to be somewhat affectively muted, or the mother may be slightly distanced from full engrossment in the relationship (Zeanah et al., 1993). The two disengaged representations were both categorized as disengaged-impoverished. These disengaged relationships are characterized by a significant lack of caregiver psychological involvement with the infant. Of the six relationships classified as distorted, two were classi-
fied as distorted-distracted, one as distorted-confused, one as distorted-role reversed, and two distorted-self-involved.

Significant and highly significant relationships were found between treatment days, recovery level I, and/or recovery level II on 10 of the 13 WMCI variables. These relationships are presented in Table 11. An examination of the findings presented in this table provides a data set that can be used to link recovery status, the relationship scales, and affective tone indicators. It should be noted that these results do not clearly indicate that recovery causes more positive maternal representations. Whatever variables influenced recovery in these mothers, including those discussed earlier with respect to the findings related to question 1, may also have influenced the quality of the representation. In addition, it should also be noted that it is possible to find many examples in the WMCI transcripts in which recovery status is not linked with higher scores on these variables.

Higher recovery level means at 6 and 12 months were significantly associated with richer maternal perceptions (p < .05). At the low end of this scale, there is a striking poverty of detail about the infant’s personality, feelings, and behavior throughout the interview. At the high end of this scale, the infant is noticed and described as an individual in full and rich detail throughout the interview. (Zeanah et al., 1993). The following examples illustrate
### Table 11

Recovery Measures and Working Model of the Child Interview Pearson Product-Moment Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Qualitative Scales</th>
<th>Content Scales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Richness of Perception</td>
<td>7. Infant Difficulty (-)</td>
</tr>
<tr>
<td></td>
<td>2. Openness to Change</td>
<td>8. Fear for Safety (-)</td>
</tr>
<tr>
<td></td>
<td>3. Intensity of Involvement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Coherence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Caregiving Sensitivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Acceptance</td>
<td></td>
</tr>
<tr>
<td>ASI drug Severity n = 18</td>
<td>- .2856</td>
<td>- .0201</td>
</tr>
<tr>
<td>Coc. Days 6-12 m. n = 10</td>
<td>- .0506</td>
<td>- .0851</td>
</tr>
<tr>
<td>Treatment Days 0-12m. n = 18</td>
<td>.4163</td>
<td>-.5524*</td>
</tr>
<tr>
<td>Recovery Level 0-6m. n = 18</td>
<td>.5807*</td>
<td>-.4722*</td>
</tr>
<tr>
<td>Recovery Level 0-12m. n = 18</td>
<td>.5607*</td>
<td>-.5746*</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Recovery Measures</th>
<th>Recovery Level 0-12m. n = 18</th>
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<td>Recovery Level 0-6m. n = 18</td>
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</tr>
<tr>
<td>Recovery Level 0-12m. n = 18</td>
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**Note:** Statistical significance levels are indicated by * (p < .05) and ** (p < .01).
<table>
<thead>
<tr>
<th>Affective Tone</th>
<th>ASI drug Severity</th>
<th>Coc. Days 6-12 m.</th>
<th>Recovery Measures</th>
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<tr>
<td></td>
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<td>n = 10</td>
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<tr>
<td>9. Joy</td>
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<td>.0287</td>
<td>.4839*</td>
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<td>10. Anger (-)</td>
<td>-.1444</td>
<td>-.0536</td>
<td>-.5915*</td>
</tr>
<tr>
<td>11. Anxiety (-)</td>
<td>-.2852</td>
<td>-.3282</td>
<td>-.0925</td>
</tr>
<tr>
<td>12. Indifference (-)</td>
<td>.1337</td>
<td>.2794</td>
<td>-.3486</td>
</tr>
<tr>
<td>13. Frustration (-)</td>
<td>-.1993</td>
<td>-.2704</td>
<td>-.6373**</td>
</tr>
</tbody>
</table>

(-) Negative Scale
* p < .05  ** p < .01 (two tailed)
this linkage. One mother with a low recovery score had
difficulty describing her baby:

Client: "I don't know, Jane, that's hard to de-
scribe."

Interviewer: "Well, if you were trying to describe your
daughter to somebody and she wasn't there, could you
kind of tell them what she was like?"

Client: "You have to see for yourself 'cause I can't
describe her. I never even thought about that. I
haven't thought about well, how can I describe Tonya.
I don't know." (#508, p. 2)

In contrast, one mother with a high recovery score described
her baby:

Interviewer: "Okay, what's he like as a person? How
would you describe him? What's his personality like?"

Client: "He's head-strong. He catches on to different
things easily. He's a bright little baby, you know.
It's just that head-strong is his will at that point.
So I have to learn how to not-not stop him, but curve
that head-strong in a positive way, you know, yeah.
Because he's determined. If he wants something he is
determined to go after it to get it, you know. And
that be an ink pen, a nail in the wall, whatever it is
he will stop for a minute, but if you don't watch him
he'll go back. Okay (chuckle). So he's definitely
head-strong." (#820, p. 2)

Mothers' scores on the openness to change variable were
significantly correlated with days of treatment (p < .05) and
with both levels of recovery (p < .01). Low scores on this
scale indicate a rigidity of descriptions of the infant,
while high scores indicate openness to change is a striking
and consistent feature of descriptions of the infant. A new
perspective on the infant may have developed during the
interview itself. A mother with a low recovery level, for
example, responded to probes about how the relationship with
her infant might change.

Interviewer: "As the relationship changes--how do you expect that the relationship with him will change as he gets older?"

Client: "It's not going to change." (#817, p. 10)

In contrast, a mother with a higher recovery level responded as follows:

Interviewer: "Is there anything you would like to change about the relationship?"

Client: "No--I could be doing more different things with him than what I'm doing."

Interviewer: "Like what?"

Client: "Like helping him with...I guess helping him walk a little more. I could spend some time doing that. Since he's starting to mimic I could start getting him some books now. I could start doing different things with the time instead of just always singing." (#836 p. 10)

There were no correlations between recovery variables and the intensity of involvement WMCI scale. As noted above, only 2 of the 18 mothers' relationships were classified as disengaged, and mothers were as likely to express intense negative feelings as intense positive feelings. The coherence scale was significantly correlated with recovery level I only (p < .05). Perhaps mothers with higher recovery levels during their infants' first six months formed more solid and well organized representations which were then sustained over the second six months, regardless of their subsequent recovery level.

Caregiving sensitivity and acceptance were highly correlated (p < .01) with days of treatment, recovery level
I, and recovery level II. Low recovery mothers often exhibited striking insensitivity to their infant’s needs and emotions, resentment about caring for the infant, and/or described the relationship as a burden. Many of the mothers described hitting their children and then being hit in return. A mixture of emotions was often expressed when the mothers discussed these situations (amusement, anger, and surprise). Mothers did not connect their actions with those of their infants. For some mothers and infants, hitting became associated with caring. When asked to describe her son, one low recovery mother responded as follows:

Interviewer: "Can you pick five words to describe Michael?"

Client: "Busy!"

Interviewer: "Okay."

Client: "Mean, funny, he’s pretty smart, too. He’s pretty smart. Just a rascal (chuckle)."

Interviewer: "Okay. Now tell me why you picked each one of those?"

Client: "Busy 'cause he stay into everything. He never stays in one spot. You got to keep up with him everywhere he go to keep him from getting into stuff. 'Cause he opens cabinets and drawers and pulls out the pots and stuff like that. Mean? He mean 'cause I can hit his hand and say, 'No, Michael,' and he'll hit me back. And he hits--I tap him, and he hits hard and he keep doing it. And then when I fake like I'm crying, he'll lay his head on me and pat my back. And soon as I stop, he'll hit me again to make me cry some more (laughs). I think he just be wanting to see the reaction." (#520, p. 2)

A striking feature of several low recovery mothers was a reversal of the role of caregiving in the relationship. One
mother used "sensitive" as one of five adjectives to describe her son. When asked to elaborate she responded:

"He's sensitive 'cause he just seems to--like he know like if I'm not feeling well or something, he kind of--kind of like won't be really active. You know, he kind of sense things that's wrong with me. If I'm angry he know. If I'm sad he know. He acts a different way. He may not--he may just look at me more and just sit still a lot, or something like that. He can sense when there's something wrong with me. So he's sensitive." (#811, p. 3)

Mothers with higher recovery levels were more likely to express caregiving sensitivity as they described their relationships with their infants. One mother discussed what she does when her baby gets upset:

Interviewer: "Does he get upset very often?
Client: "When he can't get what he wants."
Interviewer: "Okay. What do you do at those times?"
Client: "I talk to him. I tell him, 'no, you can not have it,' and he'll look at me and settle with that, you know. Then he'll point at something else like an alternative. 'Well, I can't have this. Can I have that?' You know, so you know like I say, he catches on. He understands when you say, 'no,' or 'stop,' you know." (#820, p. 6)

Another mother responded to probes about possible difficult behavior by her daughter as follows:

Interviewer: "Do you ever feel like disciplining or punishing her?"
Client: "She's too young now! I mean, I say, 'no,' you know with a stern voice but that's about the limit. That's the only thing I can do right now. Besides our time out--that wouldn't apply to her right now and you know, I said I wasn't going to whip the kids. So, no." (#806, p. 6)

As the discussion continued, the interviewer asked the
client how she handles her daughter's exploring.

Interviewer: "So does that ever frustrate you?"

Client: "At times, you know, but I think frustration goes along with being a parent. I'm going to be frustrated. It's being able to deal with your frustration is the key, you know." (#806, p. 7)

Infant difficulty was significantly negatively correlated with all three recovery variables (p < .05). That is, mothers with less days of treatment and lower recovery levels described their infants as more difficult as in the following example.

Interviewer: "How often does this kind of behavior happen?"

Client: "Anytime I walk out of the room. See, I rent a room. And the bathroom is down the hall, and the kitchen is down the hall... And I don't particularly care for him to crawl down the hall after me. So, I close the door or I will take him to the kitchen and put him in the chair. He doesn't want to be--he wants me to hold him while I cook, while I wash the bottle, while I wash my face, while I brush my teeth he wants me to hold him."

Interviewer: "How does that make you feel?"

Client: "Mad! You little brat! You can sit right there 'til I finish!" (#817, p. 5)

Mothers with more days of treatment and/or higher recovery levels did not describe their infants as difficult:

Client: "She's a happy baby. She's just really happy."

Interviewer: How do you know she's happy? Why did you pick happy?"

Client: "Because anything she do, she do with a smile." (#807, p. 3)

There were no significant correlations found with the
fear for safety content scale. In fact, the guidelines for scoring this variable were difficult to apply to these interviews. Mothers were usually not preoccupied by fears for their children's health and safety although in many cases such fears would be realistic.

There were significant relationships found between four of the five affective tone variables and recovery status. High recovery mothers expressed significantly more joy describing the relationship with their infants (p < .05):

Interviewer: "But when you say that your relationship with her is fascinating, can you give me an example of one?"

Client: "One--the good times and the bad times that we have together, you know. Me being there for her or her being there for me. And it's fascinating to me, you know. It's exhilarating. It's like being...it's like coming out of the heat into the air conditioning, you know. You just feel good all over. And that's the way it is. Cause April is a very good baby! She's a true sweetheart, she really is." (#505, p. 11)

Another mother joyfully described the changes in her relationship with her son:

Client: "It's growing. It's getting better. You know, from one stage--I can see it changing in different stages. Yeah. It's not the same as when he was a small arm baby than as he is a walking baby."

Interviewer: "Right. How do you feel about the changes?"

Client: "I love it because I'm experiencing it all with him. It's--all this is new to me!" (#820, p. 12)

Anger was significantly correlated negatively with days of treatment and recovery level II (p < .05). Mothers with higher recovery levels from birth to six months expressed significantly less indifference at 12 months (p < .05).
Mothers with fewer days of treatment and lower recovery levels were found to express significantly more frustration (p < .01). One mother discussed her feelings about what she had described as her son's "independence."

Interviewer: "How do you feel about that?"

Client: "At one time it used to bother me. I used to say: 'This boy don't even like his own mama!' (laughs) Then I guess that's just him. Another thing I think is strange--he don't--like most babies his age, if you leave him or take him somewhere else or somebody else pick them up or something, they cry. He don't cry. He does not cry. He don't care! He just don't. So I don't know." (#520, p. 5)

**Results and Discussion Related to Research Question 2b**

This question asked whether the affective dimensions of mother-child interactions as measured by the PCERA were correlated with measures of recovery. In this study significant maternal, infant, and dyadic relationships were revealed only on those scales and single variables that were designed to measure the absence of negative qualities. In contrast to the WMCI scales and affective tone measures discussed above, no relationships emerged between recovery and the presence of positive affect in the interactions. While there were no significant correlations between the PCERA rating Scale I (maternal positive affective involvement and responsiveness) and recovery variables, Scale II (maternal negative affect and behavior) was correlated with both recovery levels (p < .01). Overall, mothers with higher recovery levels were less likely to express negative affect or displeasure, to use an angry/hostile or
Table 12

Recovery Measures and Parent-Child Early Relational Assessment Pearson Product-Moment Correlations

<table>
<thead>
<tr>
<th>Rating Scales</th>
<th>ASI drug Severity n = 21</th>
<th>Coc. Days 6-12 m. n = 17</th>
<th>Recovery Measures Treatment Days 0-12m. n = 27</th>
<th>Recovery Level 0-6m. n = 28</th>
<th>Recovery Level 0-12m. n = 28</th>
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<tbody>
<tr>
<td>I. Maternal Positive Affective Involvement and Responsiveness</td>
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<td>II. Maternal Negative Affect and Behavior</td>
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<td>-.0412</td>
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<td>.4876**</td>
<td>.5120**</td>
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<td>III. Infant Organization, Communicative and Social Skills</td>
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<td>-.0476</td>
<td>.2628</td>
<td>.2370</td>
<td>.3003</td>
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<td>IV. Infant Disregulation Negative Affect and Behavior</td>
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<td>-.0005</td>
<td>.4331*</td>
<td>.3028</td>
<td>.3581</td>
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<tr>
<td>V. Dyadic Mutuality and Reciprocity</td>
<td>-.1491</td>
<td>-.1423</td>
<td>.0022</td>
<td>.0860</td>
<td>.1217</td>
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<tr>
<td>VI. Dyadic Tension</td>
<td>-.0228</td>
<td>-.1283</td>
<td>.4010*</td>
<td>.4430*</td>
<td>.4657*</td>
</tr>
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Maternal Variables
4. Expressed Positive Affect | -.1193 | .0499 | .0235 | .0775 | .1802 |
5. Expressed Negative Affect | .1537 | .2462 | .3065 | .3757* | .4472* |
11. Displeasure | .0839 | .0464 | .2544 | .5434** | .3739* |
Table 12 (continued)

<table>
<thead>
<tr>
<th></th>
<th>ASI drug Severity n = 21</th>
<th>Coc. Days 6-12 m. n = 17</th>
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<td>.4226*</td>
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<td>32. Happy, Pleasant</td>
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<td>-.1899</td>
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<td>35. Irritable, Angry</td>
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<td>36. Sober, Serious</td>
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<td>59. Flat, Empty</td>
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<td></td>
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<td>61. Enthusiasm,</td>
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<td>Joie de Vivre</td>
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<td>-.1302</td>
<td>-.1587</td>
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<td></td>
<td></td>
<td></td>
<td>-.0669</td>
</tr>
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<td></td>
<td></td>
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<td>-.0151</td>
</tr>
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</table>

* p < .05  ** p < .01 (two-tailed)
cold/distant tone of voice, or to appear to be anxious. They were less apt to respond contingently to their infant's negative behavior and to be rigid and intrusive. Of the four specific maternal affective variables selected a priori, the two measuring lack of negative affect revealed some significance. Mothers' (lack of) expressed negative affect correlated \((p < .05)\) with both levels of recovery. Mothers' (lack of) displeasure correlated \((p < .01)\) with recovery level I and \((p < .05)\) with recovery level II.

No relationship was found between Scale III (infant organization, communicative, and social skills) and mothers' recovery status. However, Scale IV (infant disregulation, negative affect, and behavior) was significantly correlated \((p < .05)\) with the number of days of treatment for the mother, but not the recovery level. Because all of these mothers had custody of their infants throughout their first year, in most cases, a day of treatment for the mother also meant a day of treatment for her infant. Mothers with the most days of treatment were enrolled in residential programs that included day care, parenting classes, and in some cases, individual dyadic sessions. Consistent with this pattern of relationships between recovery variables and lack of negative affect, the only infant variable demonstrating any significance was expressed negative affect. This variable was found to be correlated \((p < .05)\) with both days of treatment and recovery level II. Infant variables measuring
the presence of positive affect, happy/pleasant behavior, irritable/angry behavior, and sober/serious behavior were not related to the mothers' recovery.

Burns, et al. (1991) used the PCERA to assess mother-infant interaction in a small group of infants (n = 5) whose mothers were heavy cocaine users. They found that these 8-to 11-month-old infants had deficits in the expression of positive affect.

Consistent with the results found through analysis of separate maternal and infant affective variables and scales, significant correlations were found only on Scale VI (dyadic tension). All three measures of recovery were related to lack of dyadic tension (p <.05). Neither of the dyadic variables chosen a priori for analysis (flat/empty or enthusiasm/joie de vivre) were found to be significantly related to recovery.

In discussing how affect is related to recovery in these two instruments (one a measure of mother-infant interaction and the other an examination of the mother's representation of her infant), it should be noted that ten mothers participating in the interaction videotaping were not available for the interview. Nevertheless, the data do suggest that mothers with more days of treatment, and/or with higher levels of recovery at 6 and 12 months, may be more likely to reveal positive affect when talking about their children than they are to express positive affect
during the interactions. Mothers doing well in recovery are less likely to express negative affect as they discuss their infants and as they interact with them. And the infants are less likely to express negative affect and behavior when their mothers have participated in treatment for longer periods of time at 12 months.

**Results and Discussion Related to Research Question 3a**

As discussed above, number of days of treatment and levels of recovery at 6 and 12 months as measures of recovery were found to be significantly related to constructs measuring maternal representations and mother-infant interactions. Level of recovery at 12 months was selected as the best measure of recovery in order to explore differences between high recovery mothers, low recovery mothers, and comparison mothers. An examination of the mothers' recovery level data at 12 months (recovery level II) revealed that the scores for these 28 mothers could be split into two groups. There were 14 mothers with mean recovery levels equal to or greater than three, indicating that they were partially or fully engaged in treatment over the course of their infants' first year (mean: 3.59, range: 3-4). These mothers were designated "high recovery mothers." A second group of 14 received scores of 2.5 or lower. This group had been only barely engaged in treatment, dropped out of treatment during their infants' first year, or did not participate in treatment at all after the infant's birth (mean:
2.04, range: 1-2.5). These mothers were designated "low recovery mothers." Differences were examined between high recovery, low recovery, and comparison mothers for the two dependent measures (maternal representations and mother-infant interactions). It should be noted, however, that many of the mothers in the low recovery group did receive some intervention over the course of their infant's first year. Some were partially engaged in treatment for the infant's first six months, others came in for research on a regular basis, and those who were videotaped at several points received feedback. Their inclusion in a research cohort might also have served as an intervention for some of the comparison mothers. As noted earlier, these mothers were present when their infants were evaluated, expressed interest in seeing their videotapes, and developed positive relationships with the research associates.

A number of differences emerged between the three groups (low recovery mothers, high recovery mothers, and comparison mothers) on several of the qualitative scales and measures of affective tone of the WMCI. However, there were no significant differences in the overall designation of the representation. Of the 18 treatment mothers who completed the WMCI, 6 were in the low recovery group, and 12 were in the high recovery group; there were 25 comparison mothers. Therefore, of the recovering mothers missing WMCI data, most were low recovery mothers.
Although no significant differences were found in the proportion of balanced, disengaged, and distorted relationship classifications between the three groups of mothers, there are some interesting trends revealed by the data detailed in Table 13.

Table 13

Chi Square Analysis of The Working Model of the Child Interview Relationship Classifications Among Low Recovery, High Recovery, and Comparison Mothers

<table>
<thead>
<tr>
<th>Classification</th>
<th>Low Recovery n = 6</th>
<th>Group High Recovery n = 12</th>
<th>Comparison n = 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balanced</td>
<td>2 33%</td>
<td>8 67%</td>
<td>9 36%</td>
</tr>
<tr>
<td>Disengaged</td>
<td>0 00%</td>
<td>2 17%</td>
<td>8 32%</td>
</tr>
<tr>
<td>Distorted</td>
<td>4 67%</td>
<td>2 17%</td>
<td>8 32%</td>
</tr>
</tbody>
</table>

Chi Square Procedure ns

Approximately two-thirds of the high recovery mothers had balanced representations, while only one-third of both the low recovery and comparison mothers had balanced representations. Low recovery mothers had the greatest percent of distorted relationships, and overall low recovery and high recovery mothers had many fewer disengaged representations. As noted above, most of the treatment mothers’ balanced representations were restricted or restrained to
some degree. There is a tentativeness to these representa-
tions reminiscent of the anxiously attached dyads in Lieber-
man, et al.'s (1991) intervention study that showed improve-
ment in interaction but not in a measure of internalized
security. One mother in the present study, designated "high
recovery" at 12 months, was not interviewed with the WMCI
until four months later. She left residential treatment
when her infant was almost a year old and was finding the
transition to independent living difficult. Her WMCI was
not included in the statistical analysis of this data set
because of the time differential. Yet it may be indicative
of the instability of some of the recovering mothers' repre-
sentations. In the beginning of the interview, this mother
used mostly negative words to describe her infant:

Interviewer: "Okay, what's Delilah like as a person?"

Client: "She's spoiled. She's very aggressive.
That's it, spoiled and aggressive--let me see another
word for her--well, she knows what she wants. She's
playful and she's mean most of the time." (#519, p. 2)

However, as the interview proceeded, a shift occurred.
Later, when this mother talked about her relationship with
her infant, the proportion of positive and negative descrip-
tors was reversed:

Interviewer: How would you describe your relationship
with Delilah?

Client: "I think we're close" (chuckle).

Interviewer: "You're close?"

Client: "I think we're close, yeah. Especially, she
don't want nobody around her to bother her or nothing
like that. I'm the only one, you know.

Interviewer: "Again, if you could use five words that sort of describe what the relationship is like, what would you use?"

Client: "We share, we share. We play together. That's still the same though isn't it?"

Interviewer: "No."

Client: "We share, we play together. We love each other. We argue together. How many is that, four?" I need another one. We dance together. Is that one?"

Interviewer: "Does that describe the relationship?"

Client: "To me, yeah." (#519 p. 12-13)

She continued to discuss how the relationship changed over the course of her treatment and how she felt about those changes:

Interviewer: "How has it [the relationship] changed?"

Client: "'Cause when I first had her I didn't feel close to her. Cause of other things I was doing and wanted to do. But now, you know, I spend more time with her. I feel it's changed a little. 'Cause I couldn't stand her, you know, at first. After she got about three months and when I first came, you know, was upstairs [in residential treatment] it was just different." (#519, p. 15)

The process of the interview itself seemed to cause a shift in the mother's representation, yet one was left with the impression that it could quickly reverse itself again. The relationship was designated "distorted-confused."

The ANOVA test performed on the qualitative and content scales and affective tone variables of the WMCI revealed statistical differences among the three groups of mothers on the openness to change, caregiving sensitivity, and accep-
tance variables and a possible trend on the richness of perception variable. For each variable demonstrating significance, high recovery mothers' scores were the most optimal, low recovery mothers were the least optimal, and comparison mothers scored between them.

Significant differences were found (p < .03) among the three groups of mothers on the openness to change variable. High recovery mothers had the highest scores and a post-hoc test (the Student-Newman-Keuls procedure) revealed differences (p < .05) between high recovery and low recovery mothers. This is consistent with the recovery measures correlations discussed and illustrated above. The caregiving sensitivity and acceptance scales were found to be significantly different across the three groups (p < .05). The LSD procedure revealed a possible trend towards a difference (>.09) between the high recovery and low recovery and the high recovery and comparison groups. The affective tone of the high recovery mothers revealed less frustration than either of the two other groups (p < .02) overall and post-hoc tests confirmed differences between both groups (p < .05).

Although the variable measuring positive affect most directly (joy) was not found to be significantly different across the three groups, increased positive affect is implied, at least to some extent, in the scales which were significant.

Why did high recovery mothers outscore low recovery and comparison mothers on these representation variables?
Table 14
Analysis of Variance of Working Model of the Child Interview Rating Scales and Affective Tone Among Low Recovery, High Recovery, and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery n = 6</th>
<th>High Recovery n = 12</th>
<th>Comparison n = 25</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative Scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Richness of Perception</td>
<td>2.42 1.02</td>
<td>3.58 .95</td>
<td>3.02 1.11</td>
<td>2.57</td>
<td>.09</td>
</tr>
<tr>
<td>2. Openness to Change</td>
<td>2.33 .75</td>
<td>3.33 .72</td>
<td>2.88 .77</td>
<td>3.67</td>
<td>.03*^a</td>
</tr>
<tr>
<td>3. Intensity of Involvement</td>
<td>3.25 .88</td>
<td>3.42 .85</td>
<td>3.36 1.30</td>
<td>.04</td>
<td>ns</td>
</tr>
<tr>
<td>4. Coherence</td>
<td>2.67 .61</td>
<td>3.38 .86</td>
<td>3.26 .81</td>
<td>1.70</td>
<td>ns</td>
</tr>
<tr>
<td>5. Caregiving Sensitivity</td>
<td>2.00 .89</td>
<td>3.17 .75</td>
<td>2.50 1.10</td>
<td>3.19</td>
<td>.05*^b</td>
</tr>
<tr>
<td>6. Acceptance</td>
<td>2.42 .80</td>
<td>3.63 .80</td>
<td>2.94 1.12</td>
<td>3.30</td>
<td>.05*^b</td>
</tr>
<tr>
<td>Content Scales</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Infant Difficulty (-)</td>
<td>3.25 .99</td>
<td>2.25 .81</td>
<td>2.78 1.06</td>
<td>2.25</td>
<td>ns</td>
</tr>
<tr>
<td>Variable</td>
<td>Low Recovery (n = 6)</td>
<td>High Recovery (n = 12)</td>
<td>Comparison (n = 25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>8. Fear for Safety (-)</td>
<td>2.00</td>
<td>1.26</td>
<td>2.29</td>
<td>1.18</td>
<td>2.62</td>
</tr>
<tr>
<td>Affective Tone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Joy</td>
<td>2.83</td>
<td>.75</td>
<td>3.75</td>
<td>.62</td>
<td>3.14</td>
</tr>
<tr>
<td>10. Anger (-)</td>
<td>2.91</td>
<td>1.11</td>
<td>2.00</td>
<td>.77</td>
<td>2.50</td>
</tr>
<tr>
<td>11. Anxiety (-)</td>
<td>2.75</td>
<td>1.40</td>
<td>2.29</td>
<td>1.10</td>
<td>2.54</td>
</tr>
<tr>
<td>12. Indifference</td>
<td>2.17</td>
<td>.75</td>
<td>1.63</td>
<td>.57</td>
<td>2.12</td>
</tr>
<tr>
<td>13. Frustration (-)</td>
<td>3.50</td>
<td>1.05</td>
<td>2.33</td>
<td>.69</td>
<td>3.14</td>
</tr>
</tbody>
</table>

(-) negative scale

Post Hoc Tests

* Student-Newman-Keuls Procedure .05 significance between High Recovery and Low Recovery Groups.

LSD Procedure (Multiple Range Test) .09 significance between High Recovery and Low Recovery Groups and High Recovery and Comparison Groups.

* Student-Newman-Keuls Procedure .05 significance between High Recovery and Comparison and Low Recovery and High Recovery Groups.
Several explanations are possible. First, it may be that whatever factors contributed to these women's success in treatment also contributed to the quality of the representations with their infants. Zeanah, Keener, Stewart and Anders (1985) found that both mothers and fathers have stable perceptions of their infant's personality in late pregnancy and early infancy. The WMCI was developed to further test the hypothesis that attachment classifications in infants and adults reflect a similar organizational pattern of relationships. And a significant relationship was found to exist between mothers' representations of their one-year-old infants and the infants' attachment classifications (Zeanah et al., 1991). A second explanation might be that the process of recovery during the course of the infant's first year has contributed to the representation. Bernstein, Jeremy and Marcus (1986) found mothers' level of resources, rather than methadone use, predicted mother-infant interaction at four months. However, this same relationship did not exist at 12 months, indicating that other factors were beginning to influence the interaction. Infant attachment classifications have been found to change, indicating changes in the representations, when there is an increase in stress or a decrease in supports (Thompson, Lamb & Estes, 1982; Vaughn, Egeland, Sroufe & Waters, 1979). And, in studying adult representations, Main and Goldwyn (1984) found that representations were related to the
adult's capacity to recall and integrate early experiences. A continuous theory of development, illustrated by the transactional model (Sameroff & Fiese, 1990), in which characteristics of parent and infant and interactions between them constantly influence development, suggests that the relationship and the underlying representation can change. Mothers and infants in the first year of recovery are subject to a wide variety of stresses and changes in support levels, including the stress of being encouraged to confront one's past history of parenting and being parented. Possibly both factors contribute to the representation when infants are 12 months of age. In discussing their relationships with their infants, high recovery mothers made their own links between recovery and the relationship.

Interviewer: "How old is she now?"

Client: "She's a year old. I been in here five months. She was seven months old when she came here."

Interviewer: And how has the relationship changed since you came here?"

Client: "Before I came here, you know, she was just the type of baby where she would lay around and be quiet. She didn't play much or anything. And that was because I was in my addiction and I didn't give her that support and that attention that she's getting now. And the tables are just turned. She done went from one little baby that lays there and be quiet and every now and then--"

Interviewer: "So how do you feel about this change?"

Client: "The change is really...because we're both benefitting, you know. She's...I'm benefitting from being sober and she's benefitting having a sober mother....and it's different when you sober. You got all that time and all that energy that you can invest in
Another high recovery mother discussed the relationship with her daughter as close, loving, fun, safe, and strong. The interview continued:

Interviewer: "Alrighty. What pleases you the most about the relationship?"

Client: "Um, I guess because I'm in a better place in my life, I can give more to her and appreciate her more, too. I think by me--my response to her is going to make her a happier person as she gets older." (#829, p. 11)

When a high recovery mother was asked to whom her child is closest, she responded "me."

Interviewer: "Okay, how can you tell?"

Client: "It's what I want to believe (laughs). And when I see him and I say something to him, his face just lights up and he know. I know and I know he cry when he wants me to come get him."

Interviewer: "So it's a feeling that you have?"

Client: "Um hmm."

Interviewer: "How do you feel about that?"

Client: "I like it. 'Cause I'm able to take care of his needs."

Interviewer: "Has it always been that way?"

Client: "Uh uh. When I was using I wasn't able to take care of none of my kids' needs." (#836, p. 11)

Finally, a high recovery mother responded to a probe about the relationship with her daughter:

Interviewer: "What pleases you most about your relationship with Diana?"

Client: "I'm sober and I can really, really be able to see her soberly, you know. I feel real happy about that." (#806, p. 12)
**Results and Discussion Related to Research Question 3b**

This question asked whether there were differences in the affective quality of mother-infant interactions among high recovery, low recovery, and comparison mothers. The WMCI analyses detailed above showed differences among all three groups related to caregiving sensitivity, acceptance, and lack of frustration and a difference between the two groups of recovering mothers with respect to openness to change. ANOVA tests of the PCERA rating scales and maternal, infant, and dyadic variables selected a priori are detailed in Table 15 and Table 16. Scale I (maternal affective involvement and responsiveness) was found to be significantly different (p < .03) across groups. The post-hoc tests revealed significant differences (p < .05) between the high recovery and comparison mothers. Scale II (maternal negative affect and behavior) scores, while not statistically significant, did appear to be different for the high and low recovery groups and the high recovery and comparison groups. There were no significant differences found on the infant and dyadic scales.

A comparison of high recovery and low recovery mothers offered no substantial evidence that differences in representation variables were also found in maternal, infant, or dyadic behavior, with the possible exception of a trend toward less negative affect. There is some evidence that differences in representation variables between high
Table 15
Analysis of Variance of Parent-Child Early Relational Assessment Scales Among Low Recovery, High Recovery, and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery n = 14</th>
<th>Group High Recovery n = 14</th>
<th>Comparison n = 34</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Maternal Affective Involvement and Responsiveness</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.22, .93</td>
<td>3.55, .80</td>
<td>2.85, .84</td>
<td>3.53</td>
<td>.03*</td>
</tr>
<tr>
<td>II. Maternal Negative Affect and Behavior</td>
<td>3.60, .74</td>
<td>4.00, .45</td>
<td>3.59, .58</td>
<td>2.61</td>
<td>.08*</td>
</tr>
<tr>
<td>III. Infant Organization, Attentional and Social Skills</td>
<td>3.41, .79</td>
<td>3.54, .46</td>
<td>3.43, .49</td>
<td>.27</td>
<td>ns</td>
</tr>
<tr>
<td>IV. Infant Disregulation, irritability and negative behavior</td>
<td>4.60, .48</td>
<td>4.74, .28</td>
<td>4.45, .56</td>
<td>1.80</td>
<td>ns</td>
</tr>
<tr>
<td>V. Dyadic Mutuality and Reciprocity</td>
<td>2.80, 1.03</td>
<td>2.79, .79</td>
<td>2.52, .63</td>
<td>.96</td>
<td>ns</td>
</tr>
</tbody>
</table>
Table 15 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery n = 14</th>
<th></th>
<th>High Recovery n = 14</th>
<th></th>
<th>Comparison n = 34</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. Dyadic Tension</td>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td></td>
<td>3.47</td>
<td>.87</td>
<td>3.89</td>
<td>.50</td>
<td>3.48</td>
<td>.53</td>
<td>2.37</td>
</tr>
</tbody>
</table>

Post Hoc Tests

*a Student-Newman-Keuls Procedure .05 significance between high recovery group and comparison group.

*b LSD Procedure (Multiple Range Test) .09 significance between low recovery group and high recovery group and between high recovery group and comparison group.
recovery and comparison mothers were reflected in differences in maternal affective involvement and responsiveness. An examination of the individual affective variables selected a priori confirmed these findings. No differences were found between the two recovery groups but high recovery mothers expressed more enjoyment and pleasure in the interaction than comparison mothers. There was also a trend toward less flatness in the dyad between the high recovery and comparison mothers.

There are several possible explanations for the lack of concordance between representation and interaction variables. First, is the possibility that there is no relationship between the two instruments. However, the correlations found between the two measures, to be discussed later, refute this. Second, relationships between representations, interactions, and recovery may have been obscured by the arbitrary division of mothers into two groups. Third, the relative level of interaction may have risen enough among most of the recovering women to mask differences among them. A comparison of the scores of the mothers in this study with other studies using the PCERA may provide some insight with respect to these findings. Contrasts with earlier studies are difficult, however, because of revisions in the scales, differences in ages of the infants, and differences in settings. Although the norm group on which the scales have most recently been revised was a middle
Table 16
Analysis of Variance of Parent-Child Early Relational Assessment Maternal, Infant, and Dyadic Variables Among Low Recovery, High Recovery, and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery</th>
<th>Group</th>
<th>Comparison</th>
<th></th>
<th></th>
<th>F</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n = 14</td>
<td>High Recovery</td>
<td>n = 14</td>
<td>Comparison</td>
<td>n = 34</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
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<td>Maternal Variables</td>
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<tr>
<td>(4) Expressed positive affect</td>
<td>3.50</td>
<td>1.29</td>
<td>3.64</td>
<td>1.15</td>
<td>3.21</td>
<td>1.23</td>
<td>.73</td>
</tr>
<tr>
<td>(5) Expressed negative affect</td>
<td>3.86</td>
<td>1.29</td>
<td>4.29</td>
<td>.47</td>
<td>3.76</td>
<td>1.02</td>
<td>1.37</td>
</tr>
<tr>
<td>(11) Displeasure</td>
<td>3.79</td>
<td>1.12</td>
<td>4.07</td>
<td>.47</td>
<td>3.65</td>
<td>.81</td>
<td>1.29</td>
</tr>
<tr>
<td>(12) Enjoyment, pleasure</td>
<td>3.14</td>
<td>1.17</td>
<td>3.57</td>
<td>.85</td>
<td>2.68</td>
<td>1.09</td>
<td>3.72</td>
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<td>Infant Variables</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(30) Expressed positive affect</td>
<td>2.64</td>
<td>1.27</td>
<td>2.50</td>
<td>1.02</td>
<td>2.41</td>
<td>.89</td>
<td>.26</td>
</tr>
<tr>
<td>(31) Expressed negative affect</td>
<td>4.43</td>
<td>.94</td>
<td>4.71</td>
<td>.47</td>
<td>4.38</td>
<td>.92</td>
<td>.78</td>
</tr>
<tr>
<td>(32) Happy, pleasant</td>
<td>2.64</td>
<td>1.34</td>
<td>2.57</td>
<td>1.09</td>
<td>2.50</td>
<td>.86</td>
<td>.10</td>
</tr>
<tr>
<td>(35) Irritable, angry</td>
<td>4.64</td>
<td>.63</td>
<td>4.71</td>
<td>.47</td>
<td>4.32</td>
<td>.88</td>
<td>1.74</td>
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Table 16 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery n = 14</th>
<th>Group High Recovery n = 14</th>
<th>Comparison n = 34</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>(36) Sober, serious</td>
<td>2.79</td>
<td>1.42</td>
<td>2.79</td>
</tr>
<tr>
<td>Dyadic Variables</td>
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<td></td>
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</tr>
<tr>
<td>(59) Flat, empty, constricted</td>
<td>3.21</td>
<td>1.12</td>
<td>3.43</td>
</tr>
<tr>
<td>(61) Enthusiasm, joie de vivre</td>
<td>2.43</td>
<td>1.22</td>
<td>2.07</td>
</tr>
</tbody>
</table>

Post Hoc Tests

*Student-Newman-Keuls Procedure*. .05 significance between high recovery and comparison groups.

*LSD Procedure (Multiple Range Test)* .09 significance between high recovery and comparison groups.
class sample, there is a match in age and setting, and the reliability was done for both groups by the same individual. Figure 1 compares the six maternal, infant, and dyadic scales of the PCERA norm group with the three groups of mothers in the study.

On Scale I (maternal affective involvement and responsiveness) high recovery mothers scored as well as the norm group mothers at 12 months. Low recovery mothers scored lower and, as noted above, comparison group mothers scored significantly lower. An examination of Scale II (maternal negative affect and behavior) scores revealed some possible trends among the three groups of this study, but again high recovery mothers scored as well as, or higher than the norm mothers on this scale. Norm group infants demonstrated greater organization, attentional, and social skills (Scale III) than the groups of infants in the study, but more negative affect (Scale IV) than high recovery infants. Norm group dyads showed more mutuality and reciprocity (Scale V) than all three groups used in the study, and a greater absence of tension (Scale VI).

These findings confirmed the clinical impressions of this researcher in working with these dyads. Even when mothers did seem to show improvement in positive affect, the infants seemed flat. The researcher was also struck by an extreme lack of crying or fussing as an expression of needs on the part of the infant to the mother. At what point do
Figure 1. Quality of Mother-Infant Relationships at 12 Months Low Recovery, High Recovery, Comparison, and Norm Groups
high scores indicating a lack of infant irritability become a concern? According to Sander (1976), 12-month-old infants are focused on establishing self-assertion in interactions with their mothers. Some irritability and negative behavior may be expected as a natural part of this self-assertion. Perhaps extremely high scores on this scale may indicate that infants did not express their feelings because they had learned from past experience that their needs would not be met.

Why weren't the high recovery mothers' more positive scores reflected in more positive infant and dyadic scores? Perhaps mothers' positive affect represented newly acquired skills whereas infant behavior and dyadic interaction was more a reflection of cumulative experience (Stern, 1985). Other studies have shown that infants whose mothers had recovered from depression, still behaved more negatively to their mothers and showed less affective sharing (Stein et al., 1991). The absence of negative affect among the infants of recovering mothers might be a similar phenomenon to that found in studies of toddlers of depressed mothers who suppressed negative emotions and controlled their reactions to frustrations (Zahn-Waxler, et al., 1984).

In a study that focused on the effects of mother-infant intervention for mothers with postpartum depression (Clark, Fedderly, & Conlin, 1991), it was found that these mothers (n = 11) and their 12-month-old infants (mean age in months:
11.65, SD: 7.51) made significant post treatment gains (p < .02) on Scale I (maternal affective involvement and responsiveness). It should be noted that the two studies used different versions of the PCERA rating scales. However, there is a striking parallel between the significant differences in the depressed mothers' pre-intervention score (2.95) and this study's comparison mothers' score (2.85), and the depressed mothers' post-intervention score (3.42) and this study's high recovery mothers' score (3.55). It is also of interest that in the study of depressed mothers, as in the present study, none of the other scales were found to be significant.

As noted earlier the PCERA was developed in conjunction with a study of mentally ill and well mothers (Clark, 1986). There were significant differences from the present study in that infants ranged from 12 to 48 months, settings differed, and there were some differences in the variables included in the scales. However, on factor I (maternal affective involvement and responsiveness) well mothers' mean score (3.73) was only slightly better than the high recovery mothers in this study (3.55) and the mentally ill mothers' mean score (3.16) fell between the comparison mothers (2.85) and the low recovery mothers (3.22). A comparison of several individual dyadic variables was also possible. Psychiatically ill dyads rated lower on the flat/empty/constricted variable (3.19) compared to well mothers (3.86). As de-
tailed in Table 12, low recovery dyads' scores (3.21) were similar to the psychiatrically ill mothers, while well mothers scored better than high recovery mothers (3.43). Interestingly, for the enthusiasm/joie de vivre variable, both well and psychiatrically ill mothers scored better than all three groups of mothers in the present study.

A study of five moderate to heavy cocaine-using mothers and their 8- to 11-month-old infants (Burns et al., 1991) using the PCERA identified mean maternal, infant, and dyadic variables that were of significant concern (<3.00). The variable enjoyment/pleasure was rated in both studies. Scores of the mothers in the Burns et al. study on this variable (2.70) were almost identical to those (2.68) of the comparison mothers in the present study and therefore significantly less than the high recovery mothers' scores (3.57). Infants in both studies were rated on the expressed positive affect and happy/pleasant variables. Infants in the prior study scored lower (2.00) on happy/pleasant and slightly lower (2.35) than infants of recovering mothers on expressed positive affect. Scores on the dyadic variable, enthusiasm/joie de vivre, showed little difference between the two studies. Burns et al. concluded that the low affectivity measured in the infant and in the dyad was a reflection of the low affectivity in the mother. In contrast, in the present study, the recovering mothers' increased affectivity has begun to be reflected in the infant affectivity.
but not yet in the dyad. This would seem to confirm the explanation that the mother's improved affect has not been of sufficient duration to affect infant and therefore, dyadic behavior. The finding that so many of the recovering mothers had balanced representations that were strained or restricted discussed earlier seems to support this interpretation of the data set.

In summary, although the maternal affective scales and variables indicated that the high recovery mothers, and in most cases, the low recovery mothers and comparison mothers were doing well, the low infant and dyadic scale scores and variables that measure the presence of positive affect were of some concern. Infant variables (expressed positive affect, happy/pleasant, and sober/serious) and the dyadic variable (enthusiasm/joie de vivre), all received mean scores <3 indicating that these were areas of concern for all three groups.

Results and Discussion Related to Research Question 4a

This question asked whether there were differences in developmental achievements among the 12-month-old infants of high recovery, low recovery, and comparison mothers. Although their scores were not statistically significantly different from the other groups, the high recovery mothers' infants scored higher on the Bayley Scales of Infant Development Mental (MDI) and Motor Scales (PDI) than low recovery or comparison infants.
Table 17

Analysis of Variance of Infant Bayley Developmental Scales Among Infants of High Recovery, Low Recovery, and Comparison Mothers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Low Recovery n = 11</th>
<th>High Recovery n = 10</th>
<th>Comparison n = 30</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayley Mental Scale</td>
<td>104.36</td>
<td>106.70</td>
<td>102.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.172</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ns</td>
</tr>
<tr>
<td>Bayley Motor Scale</td>
<td>98.45</td>
<td>105.40</td>
<td>96.77</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>.971</td>
</tr>
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</table>
Results and Discussion Related to Research Question 4b

This question asked whether mothers' recovery measures were related to the developmental achievements of the 12-month-old infants. Bayley scores of the recovering mothers' infants did not correlate with any of the recovery measures. These findings were consistent with earlier studies of 12-month-old infants prenatally exposed to drugs and similar non-exposed comparison infants. In the largest longitudinal study of cocaine/polydrug and alcohol/marijuana exposed infants, it was found that mean developmental scores of the two drug-exposed groups did not vary significantly from the control group at 12 months of age (Chasnoff, Griffith, Freier & Murray, 1992). On the Bayley MDI cocaine/polydrug infants \( (n = 57) \) scored 102.9, SD: 11.9; alcohol/marijuana exposed infants \( (n = 24) \) scored 101.0, SD: 11.4; and control infants \( (n = 65) \) scored 106, SD: 7.7. On the Bayley PDI, cocaine/polydrug exposed infants scored 99.5, alcohol/marijuana exposed infants scored 96.9 and control infants scored 103.3. At one year of age these infants had caught up in mean length and weight compared with control infants, but head size in the two drug-exposed groups remained significantly smaller. Chasnoff et al. also found that a significantly greater number of alcohol/marijuana infants scored more than one standard deviation below the Bayley mean MDI at 12 months of age. In another study, drug-exposed full-term, drug-exposed preterm, and preterm
Table 18

Recovery Measures and Bayley Mental and Motor Scales Pearson Product-Moment

Correlations, n = 21

<table>
<thead>
<tr>
<th>Variables</th>
<th>Bayley Mental Scale</th>
<th>Bayley Motor Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ASI Drug Severity</td>
<td>Coc. Days 6-12 M.</td>
</tr>
<tr>
<td>Recovery Measures</td>
<td>Recovery Level 0-6M.</td>
<td>Recovery Level 0-12M.</td>
</tr>
<tr>
<td>Treatment Days 0-12 M.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bayley Mental Scale</td>
<td>.0704</td>
<td>-.1473</td>
</tr>
<tr>
<td></td>
<td>.0594</td>
<td>.0399</td>
</tr>
<tr>
<td>Bayley Motor Scale</td>
<td>.0258</td>
<td>.2303</td>
</tr>
<tr>
<td></td>
<td>.3508</td>
<td>.4161</td>
</tr>
<tr>
<td></td>
<td>.1223</td>
<td>.0473</td>
</tr>
</tbody>
</table>
comparison toddlers were assessed using the standardized unrevised Gesell and Bayley developmental procedures. The mean developmental quotient (DQ) scores for the drug-exposed group (97.2) was significantly lower than the mean for the comparison group (111.0) although both groups were in the average range. (Howard, Beckwith & Rodning, 1989; Rodning, Beckwith & Howard, 1989). In contrast, in the present study cocaine-exposed infants of mothers doing well in recovery had higher Bayley mental and motor scores than cocaine-exposed infants of mothers doing less well in recovery and non-exposed comparison infants. In both prior studies, it was reported that the Bayley scales may not yield an accurate assessment of the problems evidenced in some drug-exposed children. Chasnoff et al. (1992) found that many cocaine-exposed infants have low thresholds for overstimulation and demonstrate significant self-regulation problems. Howard et al. (1989) assessed the children’s play at 18 months and found that the drug-exposed children had significantly lower numbers of representational play events, and showed deficits in free play situations that required self-organization, self-initiation and follow-through.

The cocaine-exposed infants in the present study appeared to be doing well developmentally at 12 months of age and had satisfactory scores on the PCERA scales measuring both the presence of organizational, attentional, and social skills and lack of disregulation, irritability, and negative
behavior. However, their inability to express positive affect and/or appropriate negative affect may put them at risk for future development. If affect provides a motivational function for development as Demos (1988) suggests, these infants' muted responsiveness may interfere with their continued developmental progress.

Results and Discussion Related to Research Question 5

The interpretive commentary related to research questions 2 and 3 was directed at exploring the possibility of a relationship between parent-child interactions as measured by the PCERA and maternal representations as measured by the WMCI. The rationale for examining a possible relationship is based on the conclusions of Ainsworth and her colleagues (1978) that patterns of attachment in the infant (indicating a representation of the mother-infant relationship) were related to observations of maternal behaviors made in the homes over the course of the infants' first year, and the subsequent work of Main and Goldwyn (1984) and Zeanah et al. (1991) in the development of classification systems for adult representations of attachment and mothers' representations of their relationship with their infants. This research question asks whether there is some basis for the comparisons made in the present study by performing Pearson Product-Moment correlations on the six scales of the PCERA and the scales and affective tone variables of the WMCI for the entire cohort of mothers.
Table 19

Parent-Child Early Relational Assessment Scales and Working Model of the Child

Interview Scales and Affective Tone Pearson Product-Moment Correlations, n = 43

<table>
<thead>
<tr>
<th>WMCI Scales</th>
<th>Scale I</th>
<th>Scale II</th>
<th>Scale III</th>
<th>Scale IV</th>
<th>Scale V</th>
<th>Scale VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative Scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Richness of Perception</td>
<td>.3629*</td>
<td>.3488*</td>
<td>.1214</td>
<td>.2202</td>
<td>.1860</td>
<td>.3679*</td>
</tr>
<tr>
<td>2. Openness to Change</td>
<td>.4328**</td>
<td>.3686*</td>
<td>.3549*</td>
<td>.1511</td>
<td>.3908**</td>
<td>.4862**</td>
</tr>
<tr>
<td>3. Intensity of Involvement</td>
<td>.2922</td>
<td>.2869</td>
<td>-.0178</td>
<td>.2166</td>
<td>.1464</td>
<td>.2370</td>
</tr>
<tr>
<td>5. Caregiving Sensitivity</td>
<td>.2823</td>
<td>.4860**</td>
<td>.1731</td>
<td>.3690*</td>
<td>.1316</td>
<td>.3671*</td>
</tr>
<tr>
<td>6. Acceptance</td>
<td>.3929**</td>
<td>.5156**</td>
<td>.2491</td>
<td>.3498*</td>
<td>.2903</td>
<td>.4316**</td>
</tr>
<tr>
<td>Content Scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Infant Difficulty (-)</td>
<td>-.2176</td>
<td>-.5392**</td>
<td>-.0945</td>
<td>-.3927**</td>
<td>-.0868</td>
<td>-.2943</td>
</tr>
<tr>
<td>8. Fear for Safety (-)</td>
<td>.0240</td>
<td>-.0401</td>
<td>-.0966</td>
<td>-.0495</td>
<td>-.0106</td>
<td>.0444</td>
</tr>
</tbody>
</table>
Table 19 (continued)

<table>
<thead>
<tr>
<th>WMCI Scales</th>
<th>Scale I</th>
<th>Scale II</th>
<th>Scale III</th>
<th>Scale IV</th>
<th>Scale V</th>
<th>Scale VI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affective Tone</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Joy</td>
<td>.3026*</td>
<td>.5243**</td>
<td>.0225</td>
<td>.3976**</td>
<td>.1649</td>
<td>.3303*</td>
</tr>
<tr>
<td>10. Anger (-)</td>
<td>-.2125</td>
<td>-.5470**</td>
<td>-.1221</td>
<td>-.3849*</td>
<td>-.1464</td>
<td>-.3477*</td>
</tr>
<tr>
<td>11. Anxiety (-)</td>
<td>.0233</td>
<td>-.2022</td>
<td>-.1650</td>
<td>-.0574</td>
<td>-.0630</td>
<td>-.0222</td>
</tr>
<tr>
<td>12. Indifference (-)</td>
<td>-.3985**</td>
<td>-.3359*</td>
<td>-.1023</td>
<td>-.1563</td>
<td>-.1896</td>
<td>-.2405</td>
</tr>
<tr>
<td>13. Frustration (-)</td>
<td>-.2386</td>
<td>-.4559**</td>
<td>-.0425</td>
<td>-.3598*</td>
<td>-.0490</td>
<td>-.2720</td>
</tr>
</tbody>
</table>

(-) negative scale  
* p < .05  
** p < .01
Nine of the 13 scales and variables of the WMCI correlated with one or more of the PCERA interaction scales (p < .05, p < .01). As would be expected from the preceding analysis of data, most of the correlations occurred in conjunction with the maternal scales (I and II), the infant scale measuring lack of negative affectivity (Scale IV) and the dyadic scale measuring lack of tension (Scale VI).

WMCI Scale 1 (richness of perception) correlated with PCERA Scales I, II and VI (p < .05). Mothers who provided full and detailed descriptions of their infants' behavior and feelings had interactions characterized by the presence of positive affective involvement, lack of negative affect and behavior, and less tension in the dyadic interaction.

WMCI Scale 2 (openness to change) correlated significantly with five of the six PCERA scales. Mothers' ability to incorporate new discoveries about their infants in their representations was correlated with the presence of positive affect (p < .01) and with the absence of negative affect (p < .05). Mothers' openness to change was the only WMCI scale to be significantly (p < .05) correlated with infants' organization, communicative, and social skills. Interestingly, this variable did not correlate with infants' disregulation and negative affect. Mothers' openness to change correlated with both dyadic interaction scales (p < .01).

In keeping with the findings discussed earlier, intensity of involvement did not correlate with any of the PCERA
scales. Coherence, which related earlier to mothers’ recovery levels at six months of age, did not correlate with any of the PCERA scales. WMCI Scale 5 (caregiving sensitivity) was highly significantly correlated to PCERA scale II (lack of maternal negative affectivity), Scale IV (lack of infant negative affectivity), and Scale VI (lack of dyadic tension) (p < .01). That is to say that, mothers whose representations included consistent patterns of sensitive caregiving were less negative in their interactions, as were the infants and the dyadic interaction. WMCI Scale 6 (acceptance) correlated with both maternal scales, and dyadic tension (p < .01). This scale also correlated with lack of infant negative affect and behavior (p < .05). These mothers’ representations conveyed a sense of delight in caring for their infants and a lack of resentment. Their interactions were correspondingly more positive and responsive and lacking in negative affect and behavior. Similarly, dyadic tension was lacking (.01) and infants demonstrated a lack of disorganization and negative affect and behavior.

Of the two content scales of the WMCI, only infant difficulty correlated with the PCERA interaction scales. Mothers who described their infants as difficult had interactions which were characterized by more negative affectivity, as did their infants. As noted earlier, fear for safety proved to be difficult to rate in this population within the WMCI guidelines.
Mothers' representations which contained more expressions of joy correlated significantly with lack of maternal and infant negativity (p < .01) and with maternal positive affect and lack of dyadic tension (p < .05). That is to say that, the interactions of mothers who expressed joy when discussing their infants were more positive, but were even more lacking in negativity. Mothers' expressed anger in the WMCI was reflected in the PCERA scales measuring negative maternal, infant, and dyadic affect. Mothers' anxiety did not correlate with any of the interaction scales. Mothers' expressions of frustration correlated negatively with maternal positive interactions (p < .01) and lack of negative affect. Finally, mothers' expressions of frustration were related to their negative interactions (p < .01) and the presence of more negative affect in their infants (p < .05).  

Summary

In this section, summary statements related to the findings reported above are presented:

1. Treatment and comparison women were found to be similar with respect to race, marital status, years of education, income, source of income, and employment status. However, the treatment women were found to be significantly older and had more children. A few earlier studies also found similar age and parity differences (Hagan, 1987; Fritz et al., 1993). Because drug-using women typically have not sought treatment until their mid to late twenties, they have
not been available as a research population at the same age as the comparison women.

The comparison women in this study were found to be more similar to the treatment women in terms of depression, psychiatric complaints, IQ, educational achievement, and exposure to violence than in previous studies. The present study found that both groups of women had elevated, but similar levels of depression and psychiatric symptoms. Both groups of women had experienced loss to violent death and domestic violence at similar rates. Differences in intelligence and educational attainment were not found as expected. There were no major differences in parenting attitudes and knowledge between treatment and comparison women. Although treatment mothers scored surprisingly high on lack of belief in corporal punishment, the two groups of mothers scored between the norms for abusive and non-abusive mothers on variables rating empathy and role reversal. Both groups of women predicted gross motor and self-help developmental milestones at earlier than expected ages and affective and language milestones at later than expected ages.

Treatment women were significantly more likely to report family histories of substance abuse and personal histories of sexual and/or physical abuse than the comparison women. This finding confirmed the strong relationship found between familial substance abuse and sexual abuse and maternal substance abuse in earlier studies. Many of the
risk factors associated with parenting dysfunction were found in the lives of both groups of women. The lives of the addicted women were complicated by additional risks, however, and a significant percentage were involved with the child welfare system and/or had been separated from their previous children.

2. Mothers' representations of their 12-month-old infants were assessed by means of a structured interview (WMCI) that was rated for 13 constructs and an overall classification of the relationship. Mothers' days of treatment and recovery levels at 6 and 12 months post delivery, but not the ASI scores or days of cocaine use, were associated with 9 of the 13 scales and affective tone indicators of the WMCI. The strongest associations were found between all three measures of recovery and mothers' openness to change, caregiving sensitivity, and acceptance. Strong relationships were also found between recovery status and the richness of the mothers' perceptions of their infants. Negative associations were found between measures of recovery and mothers' perceptions of infant difficulty. Both positive affect (joy) and negative affect (anger, indifference, and frustration) that mothers revealed were related to recovery status. It should be noted that these results confirmed the findings of an earlier study (Johnson & Rosen, 1990) that linked maternal clinical assessment of drug abuse severity with negative maternal ratings of infant temperament.
Overall, high recovery mothers had more balanced than disengaged or distorted relationships with their infants, but relationships classified as balanced were likely to be qualified as restricted or strained rather than full, indicating the fragility and potential instability of these relationships.

3. Parent-infant interactions, as measured by the PCERA in a five-minute segment of videotaped free play, revealed significant relationships only on maternal, infant, and dyadic scales and variables that measured the absence of negative affect. No relationships were found between recovery variables and maternal, infant, or dyadic variables measuring positive affect.

PCERA Scale II (maternal negative affect and behavior) was significantly related to both recovery level measures. Mothers with higher recovery levels were less likely to express negative affect or displeasure in interactions with their infants. They were less likely to be rigid, intrusive, angry, cold, or anxious. The fact that ratings of negative affect were related to recovery, but ratings of positive affect were not supported the findings of Lyons-Ruth et al. (1989) that positive and negative maternal affective behaviors were unrelated in a high risk sample. Mothers who are becoming less negative with their infants, are thereby not becoming more positive simultaneously.

4. Mothers designated "high recovery" or "low recov-
ery" on the basis of their mean 0-12 month recovery level were compared with similar, but nonaddicted mothers as to the classification of the relationship with their 12-month-old infants. While there were no significant differences found in the distribution of three major classification categories, more high recovery mothers had balanced relationships than the low recovery or comparison mothers. Of the qualitative scales measuring the relationship, a significant difference was found among the groups on the openness to change, caregiving sensitivity, and acceptance variables. In each case, high recovery mothers received higher scores than comparison or low recovery mothers. Of the variables measuring affective tone, only the frustration variable was found to be statistically different across the groups. Again, the high recovery mothers were found to be less frustrated than the comparison or low recovery mothers.

5. A significant difference was found between the high recovery, low recovery, and the comparison mothers on Scale I of the PCERA (maternal affective involvement and responsiveness). It should be noted that a possible trend was found across the three groups of mothers on Scale II (maternal negative affect and behavior). High recovery mothers expressed significantly more enjoyment/pleasure in interactions with their infants than the comparison mothers. There was what appeared to be a trend toward significance between the high recovery and comparison mothers and infants in a
variable describing (lack of) flat/empty/constricted dyadic interactions.

These findings in which high recovery mothers expressed more positive affect in interactions with their infants appeared to conflict with what was said earlier about the results related to research question 2b, but the significant difference found here is not between the two groups of recovering mothers, but between recovering mothers and comparison mothers. Perhaps because recovering women doing well are overrepresented in this sample, or the fact that both groups of recovering mothers had access to parenting interventions, they may have outscored their non-drug using peers.

A comparison of high recovery, low recovery, comparison, and norm group mothers on the PCERA revealed a consistent pattern in which high recovery mothers, infants, and dyads outperformed comparison mothers, infants, and dyads. High recovery mothers scored as well as norm mothers on the two maternal scales. However, infants of high recovery, low recovery, and comparison mothers did less well than the norm infants on Scale III (infant organization, attentional and social skills). Both groups of recovering dyads scored above comparison mothers on Scale V (dyadic mutuality and reciprocity), but considerably below the norm mothers. High recovery dyads had less tension than low recovery or comparison mothers. These findings confirmed the results reported
in earlier studies in which infants of depressed mothers showed less positive affect (Field, et al., 1990), demonstrated less affective sharing even when their mothers no longer had depressive symptoms (Stein et al., 1991), and were described as affectively controlled (Zahn-Waxler et al., 1984). The data indicated that mothers doing well in recovery expressed more positive affect than their non-drug using peers, but this was not reflected either in infant organizational, attentional, and social skills or in dyadic mutuality and reciprocity. Even when mothers became less negative and more positive, infant responsiveness and dyadic reciprocity was not automatic.

6. No correlations were found between infants' Bayley scores and mothers' recovery measures. Both high and low recovery mothers' infants scored above the comparison mothers' infants on the Bayley mental and motor scales although these differences were not statistically significant. Even though at least six of the recovering mothers who entered treatment during pregnancy continued to abuse drugs to the extent that the infants tested positively at birth, there were no differences in development at 12 months of age. As noted earlier, the mean days of treatment 0-12 months for the entire group of recovering mothers was 146.22; a day of treatment for the mother usually meant that her infant was also receiving supportive treatment in the form of day care and a variety of parent-child interventions. This group of
infants, supposedly at greater risk than their peers, might have been expected to have lower scores. An earlier study of 12-month-old cocaine exposed infants (Chasnoff et al., 1992) also found no differences. These authors noted that their group of drug-exposed infants was atypical because of the prenatal care and intervention they received as a by-product of the study. Many of the infants in the present study received greater intervention because their mothers were enrolled in a variety of intensive outpatient, residential and/or recovery home treatment programs not available for the mothers at the time of earlier study. This level of intervention might be responsible for the current findings.

7. Significant correlations were found to exist between nine of the 13 scales and affective constructs measured by the WMCI and the six PCERA interaction scales. Most of the correlations were found between the maternal scales measuring positive and negative affect, the infant scale measuring lack of negative affectivity, and the dyadic scale measuring lack of tension. These findings supported Ainsworth (1978) who found that patterns of attachment in the infant were related to observations of maternal behaviors with infants and the work of Main and Goldwyn (1984) and Zeanah et al. (1991) in which classification systems for adult representations of attachment and mothers' representations of their infants were found to be related to infant attachment patterns.
Clinical Case Studies

Selecting a few case studies to best illustrate what was reported above was a difficult task. As would be expected, no two mother-infant dyads perfectly captured the findings of the study. The decision for determining the two cases selected for special attention was based upon the following considerations. First, it seemed important to select one mother from the high recovery group and one mother from the low recovery group. Rather than select a high recovery mother with the most optimal level of functioning, a dyad was chosen to illustrate both the positive findings of the data sets associated with recovery as well as areas of concern which remain. This study began with an inquiry about how the observed interactions and the revealed representations of mothers and their infants might be associated with recovery from addiction. A mother from the high recovery group and her infant, briefly described in a vignette at the beginning of this study, was chosen as one of the two case studies. The choice of a low recovery mother was somewhat more problematic, because there was considerably more missing data for the low recovery mothers. Only six low recovery mothers completed both of the major research measures in this study. One of these low recovery mothers, who had responded to most of the research measures systematically was selected. It should be noted that both mothers had also been available to the researcher in the
period following the data collection phase of the study. The case study mothers were of similar age (33 and 34), and educational level (13 and 14 years, both high school graduates). Neither was employed, nor had ever been married. DCFS was involved in both families. While the two mothers had a similar numbers of pregnancies (four and six), one mother had six children, the other had two. Case One was used to illustrate a mother who did well in recovery, and Case Two was used to illustrate a mother who did poorly in recovery.

**Case Study One: Barbara and Diana**

Barbara sought treatment in January, 1992 when she was four and one-half months pregnant with Diana, her sixth child. She entered a residential treatment program bringing her two youngest children, aged four and two, with her. Diana was delivered on July 2, 1992, while her mother was in residence; mother and the three children continued to live at the treatment center for three additional months. Barbara moved into an apartment with these three children for several months, then to a transitional shelter, and in February, 1993, moved back to a recovery home at the treatment center where they continued to live until Diana was 18 months old.

**Maternal family background.** Barbara is the second of four children. Her parents, both of whom worked, separated when Barbara was five. She saw her father occasionally
until she was 12, then they drifted apart and she has no contact with him. She reported that he was a substance abuser. Barbara described her childhood as "normal" and has some happy memories, including visits to her grandparents in the south, playing sports, and going to church. She also was one of the few mothers who mentioned having had a special relationship with a teacher. After graduating from high school, Barbara left home, and moved to Detroit to live with a cousin. She lived with a boyfriend from age 19 to 25, and her first child was born when she was 20. When Barbara entered treatment for her drug and alcohol addiction in January, 1992, she reported that she saw her mother infrequently. At that time she said that she was not close to her mother and found it difficult to talk to her. Barbara described her mother as outspoken, intimidating, and unable to express affection. She also reported being physically abused by her mother. Barbara felt that her mother focussed on her siblings and was too demanding and negative with her. She felt she never really fit into the family. The fact that she alone among her siblings had to sleep in a rollaway bed, and that all the other siblings' names began with the same letter (all six of Barbara's children's names begin with the letter D) symbolized this difference for her. Since entering treatment, Barbara has thought about her relationship with her mother and how her childhood has affected her relationships with her children. She discussed
these thoughts in a clinical interview with her counselor:

'Cause it's a terrible feeling to feel that. To feel unloved. To feel--to not to know what love is. Not to know what it feels like and not to know how to express it. I didn't, you know, and the relationships that I had, I used to--it's just hard for me to express to a person how I feel, you know. I can't just come out and say, 'I love you' you know. And I practice it a lot! You know, now I can feel myself and actually, you know, since my head is clearer now--that I can actually feel it and can put myself in a kid's place and say well, they wouldn't like that. (#806, p. 17)

Barbara's relationship with her mother recently improved and she reported that she sees her weekly. Barbara stated that two of her children's fathers physically abused her and three of the fathers of Barbara's children (including Diana's father) have died violent deaths (1978, 1989 and 1991).

Barbara had her first child, Dawn, in 1977 at the age of 20. Dawn has lived with Barbara's mother since her birth. Derrick, born in 1982 and Daniella, born in 1985, were in foster care. Deirdra, born in 1988 and Darnell, born in 1989, were in foster care until Barbara entered treatment. When Barbara entered treatment her four youngest children had been in DCFS custody for five months because of neglect charges. Barbara says she left the four children alone without food while she pursued her addiction.

Maternal drug use history. Barbara and two of her siblings are cocaine users. Barbara began to drink alcohol at the age of 19. She progressed from beer to wine and marijuana and began to use cocaine at the age of 29. Her
drug habit increased from three or four times per week to daily use that cost $500 weekly. Barbara said that she drank a six-pack of beer daily when pregnant with Derrick and Daniella. She reported that she abstained when pregnant with Deirdra, and drank sporadically when pregnant with Darnell. Barbara said that she used drugs only between her third, fourth, and fifth pregnancies, but since she had no prenatal care it is likely that she used cocaine during her pregnancies with Deirdra and Darnell as well as Diana. Barbara described her reaction to losing custody of her children and subsequent resolve to get help with her addiction:

   Interviewer: "How did you feel about that when you were separated?"

   Barbara: "I felt lost. Empty, but then I have to sit down and think about it. It's the best thing for them. So I decided while they was, you know, while we were apart from each other--I would do something positive with my life by getting my life together and I just started. I made up my mind. Not the instant they left, but the instant they left I just snapped! I just kept getting high for a whole month and I just--I just kept telling myself: 'You don't have nothing to worry about. The kids are not here, you know. No responsibilities.' I grew tired of that and I missed them and I was tired of getting high. I was just sick and tired of it. About it." (#806, p. 21)

Shortly after this Barbara entered outpatient treatment at TWTC. She knew she needed residential care, however, and was happy to discover she was pregnant thus qualifying for the residential unit at TWTC. When Barbara entered residential treatment and this research project, four and one-half months pregnant with Diana, she had had no prenatal care.
Maternal data. Barbara’s mean recovery level was 4.00 over the first twelve months of Diana’s life. Barbara was fully engaged in residential or outpatient treatment continuously during Diana’s first year. Barbara scored above the group mean on the BDI at intake, indicating she was moderately to severely depressed. Her score on the Rosenberg Self-Esteem Scale was above the group mean (indicating higher self-esteem) and she scored below the clinical range for psychiatric symptoms on the SCL-90-R. Barbara’s WAIS-R IQ was 83.04 one month after intake, slightly above the group mean for treatment women. Barbara accurately stated when an infant would most likely be able to crawl, sit, pull up, and say first words. She expected an infant to walk at ten months and be potty-trained and obedient at one year. On the AAPI, Barbara scored above the group means for the constructs, measuring inappropriate expectations, empathy, and corporal punishment. Her score on role reversal was between the treatment and control mothers, and close to the norm for abusive mothers.

Infant data. Diana was born drug-free. She scored 109 on the Bayley MDI and 92 on the Bayley PDI at 12 months. Diana’s PCERA scores were well above the mean for infants of high recovery mothers on the expression of positive affect and the lack of negative affect. Because Barbara was so consistently involved in treatment over the course of Diana’s first year, and Diana was living with her at the
treatment center, this meant that Diana was also exposed to day care, and Barbara participated in parenting classes and interventions. Barbara and Diana were videotaped six times at regular intervals during Diana's first year. Following each videotaping session, Barbara watched the tape and discussed it with the researcher. At one year Diana's developmental achievements were in the normal range and her high scores on positive affect variables auger well for her future development.

Maternal representation and mother-infant interaction data. Barbara achieved scores that were above the mean for high recovery mothers on all the qualitative scales of the WMCI. She described her daughter as intelligent, alert, happy, persistent, and determined. Asked to elaborate on these descriptions during the WMCI, Barbara responded:

Interviewer: "You picked intelligent. What is it about Diana that made you pick intelligent?"

Barbara: "She does things. You know, she's--seems like she know what you're saying and for her age, I think she's doing a lot of good you know, a lot of things for her age. You know, when she was little--a few months back, she was picking up toys and she knew how to give it to you. You say, 'come here,' when she starting crawling--she would come back. So it's the little things that she does."

Interviewer: "Yes, I certainly agree with you. What about alert? Why did you pick alert?"

Barbara: "Alert. Because she's always looking around. You know, and then when she goes into a new environment like on this floor, she's always looking. When we go outside she...we go to the park. Even when she's in the swing, she's always looking, you know. When she see a new face, you know, she really try to look at the face and familiarize herself with it." (#806, p. 3)
When asked who Diana reminded her of, she responded that her daughter's persistence and determination was like her own.

Interviewer: "Are there any other ways she reminds you of you or ways that you think she's not like you?"

Barbara: "At a certain point, happy. She's really happy all the time. And, that's something that maybe I was like when I was younger, you know, but I'm not totally happy. I'm blessed, you know, and now I'm like content. I don't want them to be too comfortable being content. But right now I am. But she's happy. Like not a care." (#806, p. 4)

Barbara's scores were below the group mean on infant difficulty, anger, indifference, and frustration. On the variable joy, Barbara scored slightly below the group mean. As Barbara eloquently explained above, at this point she is content, not totally happy. Based on these indicators, Barbara's relationship with her daughter was classified as balanced, restricted. As Zeanah et al. (1993) state, interviews with this designation are held back from the balanced-full subtype because they are somewhat affectively muted.

On the maternal scales of the PCERA, Barbara's feelings of contentment, as opposed to happiness, were expressed in interactions that were rated as areas of concern. On Scale I (maternal affective involvement and responsiveness), Barbara's rating was considerably below the mean for high recovery mothers. However, on Scale II (maternal negative affect and behavior), Barbara scored just slightly lower than the group mean. Her scores on the expressed negative affect and displeasure variables indicated that this was a strength for her. Barbara's ratings illustrated the finding
that level of recovery is related to the lack of maternal negative affect, but not to the presence of positive affect. The dyadic scores for Barbara and Diana reflected this same pattern. Together, the dyad scored well below the mean for high recovery dyads on Scale V (dyadic mutuality and reciprocity), but close to the mean for lack of dyadic tension. This again reflected the finding that in dyads of mothers doing well in recovery there was less dyadic tension, but not greater mutuality and reciprocity.

Case Study Two: Channel and David

Maternal family background. Channel was 33 years old at the time of admission, in June of 1992. At that time she was five and one-half months pregnant with David, her second child. At the time of admission she expressed fears that her drug use might have harmed the baby. Channel had three previous pregnancies (one abortion, one stillbirth, and one live birth). Channel’s older son, Derrick, was born in 1985; he has lived with Channel’s mother since he was four years old. Channel was born in Detroit and is an only child. During the NAPARE BPS intake interview, she described the relationship with both her parents as distant. Asked to describe her mother she stated that she was "mean, never smiled, always working, a perfectionist." Channel continued to describe her relationship with her mother as "distant" and reported that she finds it difficult to talk to her. Describing a typical week as a child, Channel
stated that her life was dull and quiet. She said that she didn’t go out much and that she had a lot of toys to play with but no people. Channel moved back and forth between Chicago and Arkansas during her grade school years, living with her grandmother for several years. When Channel was 16 her mother shot her second husband and attempted suicide. Channel completed high school, had little interest in school or in activities outside of school, and said that she acted out in school in order to get attention. She has worked as a security guard, waitress and cashier, but was not employed at intake and was supporting herself through AFDC. Channel stated that she was physically abused by two boyfriends.

**Maternal drug history.** Channel began to use marijuana at age 16 (group mean 15.68) during and after school. Her cocaine use began at age 23. She considered cocaine her primary drug and alcohol her secondary drug. She used cocaine during and between her prior pregnancies. Channel attended an outpatient treatment program for one month in late 1991. She entered a residential treatment program and this research study when she was five and one-half months pregnant, but left after six weeks. At that time Channel moved to a transitional shelter where she stayed an additional six weeks. Channel then moved in with her mother delivering David on September 9, 1992. When David was four months old, she moved to Missouri. Channel returned to Chicago four months later, moving in with David’s father, a
drug and alcohol user.

Maternal data. Channel continued to abuse drugs and did not attend treatment at all during David’s first year (recovery level mean: 1.00). Channel scored above the group mean on the BDI, placing her in the moderate to severe range for depression. Her self-esteem score was higher than the group mean for treatment women. Channel’s WAIS-R IQ score one month post admission was 74 (treatment group mean 79.93). It should be noted, however, that her urine toxicology was positive for cocaine at the time of testing. On the SCL-90, Channel’s general severity index was above the group mean. Her profile revealed that depression and paranoid ideation with evidence of suspicion, mistrust, hostility, and projection were in the clinical range. Channel participated in three videotaping sessions during David’s first year, at one, nine, and 12 months. Channel accurately predicted developmental milestones for walking, potty training, and obedience. She did not think an infant would smile until three months of age, nor say his first real words until age two. On the AAPI Channel scored higher than the treatment or control mothers on corporal punishment (lack of), and near the mean on inappropriate expectations. However her score on empathy was considerably lower than either the treatment or comparison group. Channel agreed with such statements as "parents who are sensitive to their children’s feelings and moods often spoil their children."
On the role-reversal construct, Channel’s score was between the mean for treatment and control women, and similar to the norm group for abusive mothers.

**Infant data.** Channel tested negatively for cocaine at David’s birth; David was not tested. David’s MDI on the Bayley was 117, above the group mean for infants of low recovery mothers. His PDI was 92, below the group mean for infants of low recovery mothers.

David’s scores both on Scale III (infant organization, attentional, and social skills) and Scale III (infant disregulation, irritability, and negative behavior) were both considerably below the means for infants of low recovery mothers. He received scores indicating no positive affect on two infant variables (expressed positive affect and happy/pleasant). He was rated as being extremely sober and serious. The coder noted that David lacked pleasure and brightness. David’s highest areas of strength were noted to be motoric competence, and lack of impulsivity or aggression, but it was observed that he was easily distracted and his play lacked maintenance. Visual contact and communicative competence with his mother were judged to be areas of concern.

**Maternal representation and mother-infant interaction data.** Channel had mean scores which differed significantly from the means for low recovery mothers on most of the qualitative and content scales and affective tone indicators
of the WMCI. On richness of perception and openness to change Channel scored extremely low. When asked to describe her son during the WMCI she said:

Interviewer: "At this point who does he remind you of?"

Channel: "Nobody"

Interviewer: "Nobody, okay."

Channel: "He's just like children in general." (#817, p. 2)

Interviewer: What about--is he unique or different compared to other children his age that you've known?"

Channel: "Just other than my first child, I don't know anything about children, you know, his age."

Interviewer: "At a year?"

Channel: "Um hmm, but I'm not noticing any unique qualities right now." (#817, p. 3)

Channel did express concern about the effects of her drug use on her son. She expressed relief that her prenatal drug use had apparently not harmed him:

Interviewer: "What was your reaction right after he was born, the first time you saw him? Can you remember?"

Channel: "I thought well, he's got five fingers on each hand. Five toes on each foot, and he drinks milk...formula. He's taking a bottle. He's using the bathroom. He looks okay! So he's got to be okay." (#817, p. 1)

She expressed both intense negative and intense positive feelings about her son during the interview. Channel's scores on caregiving sensitivity and acceptance were extremely low. When asked to describe what she enjoys doing with David, Channel described a chasing game.
Interviewer: "Are there other things you enjoy doing with him?"

Channel: "Encouraging him to do what he's doing. You know, he's talking. He's talking. Now I like to play this game with him. Say he's in front of that chair. The chair is a big chair, okay? And he turns around and then he notices the seat, so he's going to creep around it, and as he's creeping around, I'm creeping around. So, he's getting mad now because he's thinking, 'A minute ago, I know she was there.' I like to see him get mad because he can really get mad. When he's trying to figure out, 'now how can she?' But I will play peek-a-boo with him around that chair. That's one thing I enjoy doing." (#817, p. 3-4)

Channel described David's behaviors such as not cooperating with dressing when she is in a hurry, as annoying. When asked how she felt in this situation she responded:

Interviewer: "What do you feel like doing in situations like that?"

Channel: "I wanted to slam him up against the wall."

Interviewer: "What do you actually do?"

Channel: "I was just a little rough with him, that's all. You know, like pull his socks on him real quick, and put his clothes on him real fast, and just grab him up like a bag of potatoes, you know." (#817, p. 5)

Channel described disciplining David with a belt for getting out of bed when she has told him not too. When asked to describe how David reacts and how she thinks he is feeling, she responded:

Interviewer: What does he do after you discipline him? What does he do?"

Channel: "He cries for five or six seconds, and then he's back into it."

Interviewer: How do you think he's feeling then?"

Channel: "I've never thought about it." (#817, p. 6)
Channel scored below the group mean on the affective tone, joy. She did, however, express some positive affect for her son:

Interviewer: "Give me an example of why you picked each one [adjectives] of those?"

Channel: "Gentle is because he is a baby. Adorable, he is so cute. Warm, babies are supposed to be loved. What I say, tender? Tender because he is one of the most precious things in the world." (#817, p. 9)

But the interview overall is characterized by high levels of anger and frustration as many of the examples above illustrate. The relationship was classified as distorted—confused. Relationships given this classification are characterized by a sense that the caregiver is bewildered, overwhelmed, or uncertain about the relationship with the infant although there may also be some sense of an attempt to struggle against this confusion (Zeanah et al., 1993).

Channel expressed her bewilderment:

Interviewer: "How does he show you that he loves you?"

Channel: "He doesn't do none of that hugging stuff. And you know, you say, 'Give mommy a kiss.' He don't--he ain't--'No, I'm not kissing you or nobody.'" (817, p. 4)

Interviewer: "How did he react when you came back?"

Channel: "I have never seen him jump up and down when he seen me coming to him." (#817, p. 8)

On Scale I of the PCERA (maternal affective involvement and responsiveness), Channel scored below the group mean for low recovery mothers. On Scale II (maternal negative affect and behavior), she scored considerably below the group mean
for low recovery mothers. The coder for Channel’s videotaped segment of interaction found no instances of expressed positive affect and enjoyment/pleasure. Frequent notations were made regarding the negative affect observed on the tape. It was noted that there were frequent negative evaluations, a pervasive hostile edge to the mother’s voice, and cynical nasty taunting. It was also noted that, as Channel stated in the WMCI, she seemed to be trying to make her child mad. Channel did score higher in some areas. The amount of visual contact and verbalizations with David was judged to be a strength, although the quality of those verbalizations was not, and the coder noted that the visual contact was "not a warm glow." Channel did not seem depressed, anxious, or hyper.

As would be expected from the low affectivity scores of both mother and son, the dyadic scales and variables were also low and considerably below the means for low recovery dyads. It was noted that the dyad seemed empty and constricted, and that the mother was more negative and interactive than her son. The representation and the interaction seemed to be closely matched in this dyad, with the negativity mother expressed in the WMCI fully expressed in a short segment of interaction with her son. The brief positive expressions noted in the interview were nowhere to be found in this rating of the interaction.

Even though Channel has continued to use drugs, her
willingness to remain connected and accessible to this project is somewhat unusual. She did express some interest in examining the relationship with her son. When Channel returned for a videotape session with David at 18 months the interactions were still negative. But as in every tape of addicted mothers and their infants, there were positive behaviors to point out. After reviewing the tape with the researcher, Channel said: "I guess what I need is somebody to videotape me all the time."

Conclusions

Barbara and Channel were at opposite ends of the addiction-recovery continuum. Their backgrounds and characteristics had similarities and differences that can help explain their addiction and, perhaps, the very different trajectories their lives have taken since they became part of the study. But most interesting, was how these two mothers' relationships with their infants, both observed and revealed, provided some insight into how maternal drug use and the process of recovery interact with the mother-infant relationship.

Channel. After ten years of cocaine use, Channel was motivated to seek treatment because she was pregnant and worried about the possible effects of her drug use on her baby. Although she only stayed in treatment for six weeks, she did not test positive for drugs at David's birth. Soon after, however, she returned to drug use and continued to
use drugs during David’s first year. When David appeared to be physically sound at birth, Channel’s fears were replaced by denial: "He looks okay! So he’s got to be okay." Soon after his birth, she resumed her drug use.

The relationship between Channel and David was classified as distorted-confused. The representation was characterized by a striking lack of caregiving sensitivity, acceptance and richness of perceptions, and the presence of a high degree of anger and frustration. When asked to describe her son, Channel’s response was a dreamy recital of characteristics more associated with an ideal newborn infant than with a one-year-old (gentle, adorable, cute, warm, tender, and precious). However, she was unable to recall a single characteristic that made David special: "I’m not noticing any unique qualities right now." Channel found interacting with David to be frustrating, felt like hurting him and acted on these feelings, but she admitted that she never thought about how David might feel. Channel’s relationship with David seemed reminiscent of the mothers Escamilla-Mondanero (1977) described who romanticized how infants would benefit their lives but quickly became frustrated with the demands of the real infant. The quality of the affective interactions between Channel and David observed on the PCERA were consistent with those revealed in the WMCI. The "dreamy" baby did not seem to be present. Instead, there was a great deal of negative affect, and no
instances were noted in which Channel expressed positive affect or enjoyment/pleasure. The dyadic interaction was similarly found to be empty and constricted. Channel's data set provided some clues that aided in understanding why she had not accepted her identity as an addict and begun the recovery process. She began using drugs at an earlier age than Barbara, had a lower IQ, and more psychiatric complaints. She had an unhappy childhood, seemingly devoid of protective factors, that she had not resolved and consequently an unsatisfactory relationship with her own mother. She continued to live with a drug abuser, and she had not experienced a crisis such as loss of custody that might have helped her face her addiction.

Barbara. Barbara's WMCI was classified as balanced, although there was some restriction in affect. Her ratings were in the moderate to considerable range on the qualitative scales that measured positive qualities related to the relationship, and the interview revealed no anger, indifference, or frustration. It was in the contrast between the revealed and observed relationship that these two mothers best illustrated the findings of this study. In Channel's case, the observed interaction patterns were consistent with those revealed in the interview and both were consistently low. While Barbara did reveal somewhat muted affect in the interview, the overall positive nature of the representation was not reflected in the interaction. However, the positive
qualities revealed in the interview and the lack of negative affect was revealed in higher scores on the PCERA scales measuring lack of maternal and dyadic negative affect. This was found to be true of this group of recovering mothers. High recovery levels were related to higher scores on Scales II and VI, indicating the lack of negative affect in maternal and dyadic interaction. Although the two infants had similar and adequate developmental indices at 12 months, David's interaction scores were of concern, whereas Diana's were not. While Diana scored above the mean for infants of high recovery mothers on both the presence of positive affect and the lack of negative affect, David scored considerably below the mean for infants of low recovery mothers on both scales.

In contrast to Channel, Barbara has been abstinent since entering treatment when she was four and one-half months pregnant with Diana. When preparing these case studies an incident occurred that partially illustrated the recovery process that has taken Barbara from denial in the transition stage to construction of new relationships with herself and others in ongoing recovery (Brown, 1985). The researcher was confused because Barbara had indicated her father was dead on the NAPARE BPS at intake, and yet reported that he was living on the Maternal History Inventory that was completed at a later date. When Barbara was asked about this, she replied: "He was dead to me then." Barbara de-
scribed the moment when she hit bottom after losing custody of her children and decided to seek treatment. White (1990) stated that one of the pathways out of addiction was a precipitating crisis (Barbara's losing custody of her children) and a second was "maturing out" (Barbara stated: "I was just sick and tired of it"). In the transition stage following this point the addict may still be in denial and depression is a frequent affective state (Brown, 1985). Barbara seemed to illustrate this in the vignette in Chapter I. During early recovery Barbara seemed to come to terms with her relationship with her mother and she began to see her weekly. Barbara might exemplify the patterns described by Main and Goldwyn (1984) in which mothers' relationships with their infants were related to their ability to recall and reconcile their own parenting histories. In ongoing recovery the primary task of the addicted person is to deal with emerging emotions, denied during transition and early recovery, construct a new identity and establish new relationships with others (Brown, 1985). Barbara illustrated this process. She thought about the relationship with her daughter, and was able to describe her own changing emotions. She has begun to feel positive emotions: "...now I'm like content;" but not joy: "...but I'm not totally happy."

Barbara's ongoing recovery, though successful thus far, is extremely difficult. All of her older children have scars that are visible and must be dealt with now that she
is no longer in denial. It is an exhausting life both physically and emotionally. Barbara has to deal with keeping the focus on her addiction by attending group therapy and AA meetings, taking her older children to therapy sessions, looking for an apartment, trying to give time to each of her children now that her identity incorporates a more adequate concept of the meaning of parenthood, and after successfully volunteering in the day care at TWTC, accepting a real job as an assistant teacher.

Barbara's history revealed some possible reasons for her success in recovery. While both mothers reported difficult childhoods and both have experienced violence, there appear to have been some protective factors in Barbara's childhood. She does have some happy memories and she was able to describe a special relationship with a teacher. Because Barbara has reconciled with her mother she has some social support not available to Channel. While the relationship between Barbara and her daughter was not ideal, it was not negative. Diana, perhaps because of the care she received at TWTC and the warm relationships she enjoyed with her teachers, was a far different child than David at one year. These two cases illustrated the grim reality of mother-child relationships when mothers are actively engaged in addiction and the extremely difficult task of recovering and parenting simultaneously.
CHAPTER V
SUMMARY AND CONCLUSIONS

Overview

The overall purpose of this descriptive and exploratory study was to contribute to the knowledge base that is needed to design and implement effective models of intervention for substance-abusing mothers and their infants. Treatment programs for drug-abusing families are aimed at reducing the personal and societal costs of maternal substance abuse. This study addressed one aspect of this multi-faceted problem—the mother-infant relationship in the context of recovery from cocaine/polydrug addiction.

Results from the first generation of research with children who were prenatally exposed to drugs led to the conclusion that these children's developmental outcomes are best understood through an examination of the multiple risk factors in their lives. Studies of similar vulnerable infants found that risk factors reflected in the earliest interactions between mothers and infants influenced the children's development. The foundation of this study was a theoretical approach centered on understanding mother-child relationships through an examination of maternal representations and overt mother-infant interactions that influence
and are influenced by these representations. Prior research that confirmed the centrality of affect in understanding relationships and clinical observations of mothers and infants that raised questions about the affective quality of their interactions led to an examination of mother-infant relationships through this window. Finally, the study addressed how the changes required in identity and intimacy in the two processes of parenthood and recovery might be related. It was hoped that the findings of this study would contribute to a greater understanding of these critical issues and provide helpful information to intervention programs with the dual focus of strengthening mother-child relationships and promoting recovery from addiction.

The limitations of this study were addressed at the conclusion of Chapter III. This was a relatively small study with treatment subjects who were somewhat self-selected by virtue of their accessibility to the researcher. Other limitations included missing data, several significant differences between treatment and comparison women and the use of several instruments that have not been subjected to carefully designed reliability and validity studies. Finally, the study's examination of linkages between recovery, maternal representations, and mother-infant interactions cannot be interpreted as a causal relationship.

In spite of these limitations, this study yielded information that might be helpful to programmers designing
and implementing interventions for substance-abusing mothers and their children. The theoretical and methodological conclusions derived from the results of this research follow. Finally, this chapter will address the implications of the findings for intervention with substance-abusing women and their children and suggest areas for further research.

**Theoretical and Methodological Findings**

**Risk Factors Contributing to Maternal Representations**

The analysis of the background variables indicated that maternal addiction is one of a multitude of risk factors that affected the lives of the women in this study. The comparison mothers, although they were younger, had fewer children, and were not involved in the child welfare system, were found to be similarly at high risk for parenting dysfunction. Risk factors associated with maladaptive parenting and poor outcomes in children were present in the lives of these poor, unmarried, minority mothers whether or not they abused drugs. Factors such as depression, presence of psychiatric symptoms, low IQ and educational achievement levels, suspect parenting attitudes, and inadequate knowledge of child development contributed to both groups' parenting vulnerability and support the need for intervention. Both groups of women have experienced comparable rates of loss to violent death and domestic violence. This finding, in addition to the similar rates of depression and psychiatric symptoms for both groups of mothers, was not expected
and may be indicative of worsening conditions in general for all disadvantaged, inner city women. All of these elements are likely to have a negative influence on mothers' representations of themselves as parents and their representations of their children. In addition, factors such as depression, depleted reserves of energy associated with poverty, lack of parental skills, and inadequate knowledge of development also directly influence the interactions between mother and child.

Both comparison and treatment mothers generally fell between the norms for abusive and non-abusive mothers on variables rating empathy and role reversal. Mothers predicted that their infants would achieve gross motor and self-help developmental milestones at earlier ages than expected, but predicted affective and language milestones at later ages than expected. Some of these findings may reflect different expectations and priorities for children's development that are culturally based. However, these findings also fit a pattern in which mothers seem unaware of children's feelings, capacity for relatedness with others, and communicative abilities. Many of these mothers expect children to grow up quickly, take care of themselves, and bear the responsibility for meeting their mothers' emotional needs.

In addition to sharing all of the risk factors that influence the parenting capabilities of their drug-free
peers, an additional set of risk factors compounded the lives of the addicted women. Many grew up in substance-abusing families and a high percentage reported that they were victims of physical and/or sexual abuse. Not surprisingly, the drug-abusing women had lower self-esteem than the comparison mothers. The psychic pain associated with either parental substance abuse or physical and sexual abuse is great enough to become the central organizing principle of one's life; addiction is one way to medicate oneself against these traumas. Many of these women grew up under parents so consumed by their own needs that they could not even acknowledge that their children had different feelings and needs, let alone meet these needs. As a result, many of the mothers in this study have a tremendous need to be cared for--and an inability to care for--that reveals itself in a reversal of parental roles (Brown, 1988). For many of these women the decision to bear a child may be related to these risks and based on faulty assumptions. These assumptions are that the infant will provide them with the nurturing their parents did not and that the pregnancy alone will suffice to motivate them to stop using drugs for good. Studies that have compared women with and without treatment histories support the inference that the age and parity differences between the addicted and comparison women in this study existed because younger addicted mothers are not entering treatment; instead they are "on the street." The
mothers in this study had used their primary drug (cocaine) for an average of eight years and 73.7 percent had used drugs during a previous pregnancy. They had either not recognized the need for treatment on their own or been forced to seek treatment by the child protective system. Therefore, by the time they have come into contact with treatment programs and become subjects for research studies such as this, the potential for parenting dysfunction has been further compounded. The addicted mothers' vulnerability is already heightened because of their greater rates of familial substance abuse, physical and sexual abuse, and the lifestyle associated with addiction. Both the women's addiction and their decisions to keep bearing children might be related to these factors. As a consequence, they now have more children and these children are likely to have serious problems. Success in recovery will be accompanied by facing the reality of the effects of addiction on their children's lives. Success in recovery will mean reunification with children who have behavioral, emotional, and perhaps developmental problems. Thus the lateness of their entry into treatment adds additional parenting responsibilities and lessens the addicted women's capacities for fulfilling these responsibilities.

Recovery and the Mother-Infant Relationship

Maternal representations. The longer mothers were in treatment and the more engaged they were in recovery, the
more likely they were to reveal qualities associated with positive mother-child relationships during the WMCI. Addiction is marked by a narcissism in which the addicted person neither perceives of nor responds to the needs of others (White, 1990). Early recovery is equally self-centered because the addict must focus on the reality of her identity as an addict and struggle with abstinence (Brown, 1985). The task of ongoing recovery is the establishment of a new identity and new relationships with others. Thus, mothers doing well in recovery at their infants' first birthdays expressed greater acceptance, openness to change, and caregiving sensitivity than mothers with lower recovery scores. Their perceptions of their infants were also richer, and they perceived their infants as less difficult. They were more likely to express positive affect (joy) and less likely to express negative affect (anger, indifference, and frustration).

As a group, the scores of high recovery mothers were more optimal than those of low recovery and comparison mothers. These addicted mothers doing well in recovery, who together had more risk factors associated with parenting dysfunction than their drug-free peers, may be capable of developing more positive mental representations of their infants than comparison mothers. The developmental process of recovery combined with interventions to strengthen parenting and new knowledge about how children develop may be
accompanied by a parallel developmental process in parenthood. High recovery mothers also had greater representations classified as balanced although these were likely to be qualified as restricted or strained rather than full. For these high recovery mothers, the developmental tasks of recovery and parenthood seemed to be evolving in tandem. There was a new, albeit fragile, awareness of self as parent and child as a separate individual with feelings and needs. There was reduced negative affect in the representations these mothers had of their infants. High recovery mothers also expressed more positive affect in conversations about their infants. However, these expressions of positive affect were somewhat muted.

Mother-infant interactions. Mother-infant interactions as measured by the PCERA revealed relationships with recovery status only on maternal, infant, and dyadic scales and variables that measured the absence of negative affect. No relationships were found between recovery variables and maternal, infant, or dyadic variables that measured positive affect. This finding supported the hypothesis that positive and negative affect are not the poles of a single continuum; rather they are constructs that may vary independently of one another (Lyons-Ruth et al., 1989). Mothers doing well in recovery displayed less negative affect, there was less tension in the dyads and infants were less negative and disregulated when their mothers (and the infants themselves)
spent more time in treatment. Addicted mothers may show more positive affect in the denial of addiction or, for some, in the euphoria of early recovery. For most mothers, however, ongoing recovery is a time when long denied feelings surface and depression is common; joy comes late in recovery (White, 1990). Therefore, there is some evidence that reduced negative affect in mother-infant interactions may be associated with recovery. However, expressions of positive affect were not related to recovery status when infants were one year of age.

Mothers doing well in recovery displayed more positive affective involvement and responsiveness than the comparison mothers. In fact, a consistent pattern was revealed in which high recovery mothers, infants, and dyads outperformed comparison mothers, infants, and dyads. It is not known whether these mothers had a greater capability for parenting initially or if their parenting has improved because of the intervention they received. But this group of mothers, who were at greater risk for parenting dysfunction, outperformed a group of similar, but nonaddicted mothers, on a measure that examined the quality of their positive affective involvement with their infants.

When compared with a norm group of mothers and infants, the infant and dyadic measures reflecting positive affect lagged behind the maternal measures. Even when mothers became less negative and more positive, infant responsive-
ness and dyadic reciprocity was not automatic. Lack of negative affect in these infants might not be a strength. Rather, this finding might indicate that the infants did not experience themselves as agents capable of affective sharing. Perhaps the low levels of negative affect and presence of positive affect seen in these mothers was a result of recent changes in their working models that occurred in the process of recovery. The infants' affectivity, however, could reveal that their working models of the relationships, or RIGs (Stern, 1985), were a result of cumulative experiences with mothers whose affectivity varied considerably over the course of these infants' first year of life. What these infants revealed may be similar to earlier studies of infants of depressed mothers who showed less positive affect (Field et al., 1990, demonstrated less affective sharing even when their mothers no longer had depressive symptoms (Stein et al., 1991), and were described as affectively controlled (Zahn-Waxler et al., 1984).

Maternal Recovery and Infant Development

Both high and low recovery mothers' infants scored above the comparison mothers' infants on the Bayley mental and motor scales although these differences were not found to be statistically significant. Even though at least six of the recovering mothers who entered treatment during pregnancy continued to abuse drugs to the extent that the infants tested positively for drugs at birth, there were no
differences in development at 12 months of age. And, as noted earlier, a day of treatment for the mother usually meant that her infant was also receiving supportive treatment in the form of day care and a variety of parent-child interventions. This group of infants, supposedly at greater risk than their peers, had more optimal scores. An earlier study of 12-month-old cocaine-exposed infants (Chasnoff et al., 1992) also found no differences. These authors noted that their group of drug-exposed infants was atypical because of the prenatal care and intervention they received as a by-product of the study. Many infants in the present study received greater intervention because their mothers were enrolled in a variety of intensive outpatient, residential, and/or recovery home treatment programs not available for the mothers at the time of the earlier study. It is possible to speculate that this level of intervention might be responsible for the current findings in which infants of mothers doing well in recovery had higher scores than infants in the Chasnoff et al. study. These results were also compatible with what has been found in a study of older toddlers. Griffith et al. (1994) found that drug-exposed children living in a drug-free environment performed better on a measure of verbal intelligence at three years than those continuing to live with a drug-using parent.

No correlations were found between infants' developmental scores and mothers' recovery measures. This might be
explained by the generally high level of recovery of these mothers as a whole and also by the fact that findings of significance relating interaction to recovery were found on maternal scales, but not on infant or dyadic scales. Compared to a norm group, these infants were found to have lower positive affect and less dyadic mutuality and reciprocity. Development has been found to be highly canalized in infancy (Kagan, 1982), but some behavioral patterns (such as gross motor) may be more canalized than others (such as socioemotional and communicative patterns) (Garcia-Coll, 1990). This study may support this hypothesis. While the infants’ developmental milestones were within normal limits, their suppressed affectivity, both negative and positive, revealed a potential vulnerability. Regardless of their developmental achievements at 12 months of age, if affect does provide a motivational force for development (Demos, 1988), these infants may be at risk for future development.

Assessment of Mother-Infant Relationships

Correlations were performed on the entire cohort of mothers to determine whether a relationship existed between mother-infant interaction data as measured by the PCERA and maternal representation scales and affective tone as measured by the WMCI. Nine of the 13 scales and variables of the WMCI correlated with one or more of the PCERA interaction scales. As the data discussed thus far indicated, most of the correlations found were between the maternal scales
measuring positive and negative affect, the infant scale measuring lack of negative affect, and the dyadic scale measuring lack of tension. These findings are compatible with the research that related patterns of attachment in infants to observations of mother-infant behaviors (Ainsworth et al., 1978), and the studies of Main and Goldwyn (1984) and Zeanah et al. (1991) in which classification systems for adult representations of attachment and mothers' representations of their infants were found to be related to infant attachment patterns.

This study, utilizing the PCERA, examined maternal, infant and dyadic interaction behaviors and found significant differences in the affect observed in mothers, infants, and dyads. Studying only maternal behaviors might have led to different conclusions. Maternal interaction behaviors are more likely to reflect mothers' current emotional availability whereas infants' interaction behaviors are probably a better indication of the mothers' cumulative emotional availability. This study supports the use of such multidimensional measures that can help to illuminate the complexity of mother-infant relationships. In addition, the use of a comparison group provided an important benchmark against which to gauge the relationships of the addicted mothers and their infants. Studying the interactions of addicted mothers and their infants without the aid of a comparison group could have resulted in false assumptions
about their parenting capacities.

What mothers revealed in discussions of their infants was not necessarily synonymous with what was observed in the interactions. Some of the differences between mothers' representations of their infants and what took place in the interaction could be explained in light of mothers' recovery status. Understanding parent-child relationships requires assessment of what parents say about their children as well as what happens in the interaction (Cramer, 1986).

**Interventions to Strengthen Mother-Child Relationships in the Context of Recovery**

**The Second Generation of Treatment Programs for Mother and Child**

Research on the developmental outcomes of children prenatally exposed to cocaine is entering a second generation that requires a paradigm shift toward studying the effects of maternal drug use in the context of children's caregiving environments (Lester & Tronick, 1994). A parallel shift in emphasis is also needed in treatment programs for drug-abusing mothers and their children. The findings of this study may be able to contribute to the design of a second generation of treatment programs capable of addressing the complexity of parenting and recovery.

Treatment programs began to include pregnant women and their children to reduce the numbers of drug-exposed infants and to eliminate one of the barriers to treatment for women.
It was assumed that these services could simply be appended to traditional models without fundamental changes taking place; it is now recognized that conflicts are likely to arise when treatment and parenting interventions are combined (Harvey et al., 1992; Pawl, 1992). The challenge is to encourage treatment programs for parents to espouse a new philosophical approach that combines a developmental perspective on recovery with a developmental perspective on parenthood. The first step is for agencies to recognize the need to examine existing attitudes about the relationship between recovery and parenting. Programs that are reoriented toward a dual perspective on recovery and parent-child relationships will reflect this new approach when they make decisions regarding program content, scheduling, and the hiring and supervision of staff. They will also recognize that staff coming together with a variety of backgrounds, perspectives, and their own personal histories of parenting will need to engage in an ongoing dialogue to achieve consensus on the program's approach. Agreement on theoretical principles and the establishment of priorities at the agency level can provide the support that is needed at the staff level to effect changes in attitudes and programming. When staff from a variety of backgrounds gather to address the individual needs of clients and their children conflicts between components can be uncovered, explored, and resolved (VanBremen & Chasnoff, 1994). This process is a two-way
street; both addiction and parenting practitioners have much to learn from one another. While some traditional confrontation tactics may be destructive to the parent-child relationship, these mothers do need to understand the consequences of all their behaviors. For some, confrontation and the setting of limits is more appropriate than a parent empowerment approach that could enable them to continue to deny their addiction and its effects on their children. The challenge is to provide interventions that strengthen parent-child relationships and permit mothers who have not been cared for to experience nurture and become nurturing to their children, all within a context that respectfully but firmly sets limits of acceptable behavior and exacts consequences when expectations are not met. Understanding how the interactions and representations that comprise mother-infant relationships are interrelated and influenced by the mother’s addiction and recovery will assist staff in their attempts to support and strengthen these relationships.

**Parenting Interventions in the Context of Recovery**

This study grew out of the researcher’s experiences designing and implementing parenting interventions for recovering women at The Family Recovery Center. The findings reported here confirmed impressions that the recovery process and mother-child relationships were intertwined. Just as lessons learned from work with high risk infants are applicable to this new population of high risk, drug-exposed
infants, many of the components of effective early intervention programs for high risk parents are also appropriate for use with recovering mothers. However, the addicted mothers' increased vulnerability for parenting dysfunction and stage of recovery require some differences in parenting interventions. The findings of this study can assist with the selection and implementation of effective parenting interventions for these mothers and their children.

The Family Recovery Center applied the "zone of proximal development" (Vygotsky, 1978) to parenting interventions in which the mother's stage of recovery, possible dual diagnosis, child custody status, past history of parenting, and current skills were taken into account. Intervention was based on mutual goal setting between counselors and clients, and a mix of services with an emphasis on active participation as opposed to didactic instruction was provided. This study's findings strongly support the need for addiction programs to individualize parenting interventions in tandem with clients' recovery status and parenting skills. Programs need to understand that mothers who are successful in recovery and seem to have positive representations of their children may still have great difficulty expressing positive affect during interactions with their children. Recovering mothers will need intensive support and aftercare to maintain and strengthen the fragile new relationships established with their children during treat-
The parenting component of the Family Recovery Center included parenting classes and support groups, toy making, role playing, mother-infant play groups, family literacy activities, participation in daycare and prekindergarten classes, and the use of videotape to support and strengthen positive mother-child interaction. Mothers' participation in these activities was tailored to meet their individual parenting needs and capacities and their status in recovery. One of the components (videotaped interactions) used as an intervention was also integral to this study.

Using Videotape to Strengthen Mother-Child Interaction

As noted earlier, the mother-infant interaction data utilized in this study consisted of PCERA ratings of a five-minute segment of videotaped free play. In addition to the research generated from a portion of these 20-minute videotaping sessions, the processing of the videotapes with the mothers constituted a parenting intervention (Bernstein, 1992; Bernstein, et al., 1991; Bernstein et al., in press) McDonough (1989). As mother and researcher watched the videotape together, parenting strengths were observed and discussed and parenting concerns were addressed by questions that were designed to help the mother think about what was happening in the interaction between mother and child. When surveyed later about these experiences, mothers indicated that they found this intervention to be effective in helping
them to understand and make positive changes in their interactions with their infants. Mothers responded favorably when asked if they had learned anything about themselves as parents through this process, for example:

Yeah, I learned that I wasn't interacting with Richard enough, but the last one made me feel proud—it shows—on the last tape I interacted. Yeah, I think I'm starting to do more with Richard. I'm playing and talking with him more. Now when I take him to the park we'll get on the slide together or I swing with him. Before I wouldn't play with him much. (VanBremen, 1993, p. 3)

This process centers on mother-infant interaction in the here-and-now. It was developed to be used by paraprofessionals during home visits with high risk parents and has been found to be effective with this population (Bernstein, et al., 1991). The techniques can be taught to addiction counselors who can use them in individual work with mothers with or without videotape. In addition, the training process can be instrumental in helping staff to acquire new understanding and attitudes regarding parenting and recovery that can positively affect the overall treatment milieu.

This technique is particularly helpful in assisting mothers to become aware of their own and their infants affectivity and responsivity. As mothers watch themselves interact with their infants and respond to probes about what they and their infants are thinking and feeling, discrepancies between representations and interactions may be revealed and addressed. This process may encourage the development of a new awareness of the mother-child relationship.
Utilizing Cognitive Concepts of Recovery and Parenthood to Enhance Awareness of Behavior

In addition to the potential conflicts between addictions treatment and parenting interventions, there are areas where the two fields can learn from each other. Most addicted persons relapse at some time during their recovery. Addiction practitioners have responded by developing techniques to deal with relapse, some of which may also be applicable to clients in their roles as parents. These relapse prevention strategies include assisting addicts to develop individual relapse prevention plans and respond to relapse as a milestone in the progression of recovery and teaching addicts so much about addiction that there is a weakening of the cognitive defense structure that supports active drug use (White, 1990). It is thought that even if addicts continue to abuse drugs, they will never be able to do so without being aware and conscious of the addictive process and the reality of their addiction. This is somewhat analogous to techniques developed by Project STEEP (Steps Toward Effective, Enjoyable Parenting, Egeland & Erickson, 1990) in which clients are told of research findings and introduced to cognitive concepts, such as ambivalence and continuum, that are helpful in thinking about parenting concepts. Mothers in Project STEEP were also told of research findings related to parenting.

The Family Recovery Center found that the most effec-
tive parenting discussion groups were those that began by having mothers express their parenting concerns. Through questioning, mothers generated the pros and cons of all possible courses of action from the point of view of their own needs and their children's physical, cognitive and emotional development. Through repetition of this process, mothers came to a cognitive awareness that parenting involves making choices, sometimes between their own and their children's needs, and that these choices have consequences for children's development. It might be helpful for mothers to discuss the relationship between affect and development and examine concepts of positive and negative affect on separate continuum.

Just as learning relapse prevention techniques have proved helpful to recovering persons, knowing about some of the findings of this study may be helpful to recovering mothers. We found that mothers who were looking forward to reunifications with children from whom they had been separated romanticized what these relationships would be like early in recovery. It might be helpful for mothers to have some prior understanding of how relationships with their children, and particularly their own and their children's expressions of affect, may be related to the recovery process.
Efforts to Change Maternal Representations

Although few programs may have access to infant mental health specialists, the insights provided by Fraiberg and her colleagues are particularly relevant for mothers who are addicted (Fraiberg, Shapiro & Cherness, 1980). Fraiberg believed that interventions that included the infant could not be postponed until after the resolution of a parent's problems. In fact, the infant is seen as a catalyst for possible changes in parenting capacity, even before it is possible to effect fundamental changes in personality. However, as White (1990) suggested, the first rule of the substance abuse field, and all helping professions, should be "first do no harm." Entering the life of a substance abusing family requires humility, gentleness, and skill. To uncover and attempt to change parental representations requires professionals who are clinically trained and supervised. It is irresponsible to uncover the past without providing the structure and support for parents to deal with painful memories and emotions (Koplow, 1992). However, addiction treatment counselors are trained to encourage their clients to examine the past. They often use techniques such as genograms or family diagrams to help women examine their parenting histories. Some programs for high risk parents have used similar group strategies to help mothers acknowledge and overcome past histories of abuse and neglect (Egeland & Erickson, 1990; Koplow, 1992; Valliere,
The high probability that substance abuse in many of these women is related to histories of familial substance abuse and physical and/or sexual abuse demands that these issues be dealt with in treatment from the standpoint of recovery and parenting. How to do this in a way that helps rather than harms these mothers and their children, given the level of resources that are likely to be available, is another significant challenge needing to be addressed by substance abuse and child development practitioners.

**Recommendations for Further Research**

Further research is needed to understand specifically how background variables, current resources, and addiction and parenting interventions affect recovery and mother-infant relationships. The findings of this study suggest further study of a possible causal relationship between histories of familial substance abuse, physical and sexual abuse, and maternal substance abuse. Research that targets younger drug-abusing mothers before they interface with the child welfare system and seek treatment is also suggested.

It would be helpful to study mothers’ representations of their own parental relationships as well as representations of their infants. It would also be interesting to compare mothers’ representations of several of their children. Because this study only investigated mothers’ representations and interactions at one point in time (when infants were 12 months of age) further study is needed that
examines mother-child relationships, including interactions and representations at several ages, particularly as infants become toddlers and preschoolers and mothers are further into recovery or relapse.

This inquiry began with a description of a mother who seemed not to understand that her infant might not be able to feel love that was not expressed. It seems fitting to close with the words of a recovering mother who understands the connection between treatment, recovery, and her affective relationship with her daughter.

Interviewer: "What do you mean?"

Client: "You know, I was able to watch her learn and grow and stuff and to spend time with her."

Interviewer: "And the relationship changed then?"

Client: "Uh huh, yeah, cause I thought my baby didn't like me at first. Because she would always--she would cry all the time with me. But when somebody else had her she would never cry. She would always cry when I had her. And so, they was telling me it’s something that a child can feel, you know. It's a--it’s just something kids can just sense in their parents, you know. When their parents is frustrated with them and/or just don’t want to be bothered or something like that. And I didn’t know a small baby knew that."

Interviewer: "So finding that out then changed your relationship?"

Client: "Yeah, because it helped me to work with her and stuff. And the more I worked with her, the closer we got."

Interviewer: "And how do you feel about that change?"

Client: "It’s great! It’s real great."

Interviewer: "Knowing what you know now, if you were starting all over again with Delilah, would you do anything differently?"
Client: "Yeah, I would try to get into--had gotten into treatment before I had her. And that way, I could have shown her more love from the time she was born." (#519, p. 15)
APPENDIX A

BIO-Psycho-Socio Assessment
# BIO-PSYCHO-SOCIO-ASSESSMENT
(Data Entry)

## BACKGROUND INFORMATION:

1. ADMISSION DATE: ____________________ / __ __ / __ __

2. DATE OF BIRTH: ____________________ / __ __ / __ __

3. RACE:
   - African/American .............................. 1
   - Caucasian ........................................ 2
   - Hispanic ......................................... 3
   - Other ............................................. 4

4. MILITARY ............................................. 1 2
5. DUI ................................................ 1 2
6. LEGAL ............................................... 1 2
7. PROBATION ........................................... 1 2
8. PAROLE .............................................. 1 2

## EMPLOYMENT HISTORY / FINANCIAL SITUATION

9. CURRENTLY EMPLOYED? (If no, skip to question 13) ............ 1 2

10. LENGTH OF CURRENT EMPLOYMENT:
    1. 0-6 mos. ............................................. 1
    2. 6-12 mos. ......................................... 2
    3. 12-24 mos. ....................................... 3
    4. over 24 mos. ...................................... 4
    5. don’t know ........................................ 5

11. EMPLOYMENT IN JEOPARDY? ............................ 1 2
12. EMPLOYER INVOLVED? ................................... 1 2
13. PREVIOUS EMPLOYMENT? (If no, skip to question 18) ........... 1 2

14. NUMBER OF JOBS CITED: ................................ ...........

15. AVERAGE LENGTH OF EMPLOYMENT
    1. 0-6 mos. ............................................. 1
    2. 6-12 mos. ......................................... 2
    3. 12-24 mos. ....................................... 3
    4. over 24 mos. ...................................... 4
    5. don’t know ........................................ 5

16. LONGEST PERIOD OF EMPLOYMENT (IN MONTHS): .... ...... ...........

17. LOST JOB? ............................................. 1 2
18. ADULTS EMPLOYED? ...................................... 1 2
19. DO YOU RECEIVE:

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</tr>
<tr>
<td>SS DISABILITY BENEFIT</td>
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</tr>
<tr>
<td>SS SURVIVOR BENEFIT</td>
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<td>2</td>
</tr>
<tr>
<td>SS SUPPLEMENTARY INS.</td>
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<td>2</td>
</tr>
<tr>
<td>CHILD SUPPORT</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>OTHER</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

20. PRIVATE HEALTH INSURANCE? 1 2

21. GREEN CARD? 1 2

22. TOTAL ANNUAL INCOME

(Compute the sum of income earned from employment and income received from public assistance. Multiply public assistance figures by twelve to get an annual figure.)

SCHOOL AND EDUCATION

23. NUMBER OF YEARS OF EDUCATION COMPLETED: 

24. WERE ANY DEGREES EARNED?
   Yes 1
   No (Skip to question 26) 2

25. DEGREES EARNED:

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<tr>
<th>Degree</th>
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<td>H.S. diploma</td>
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</tr>
<tr>
<td>G.E.D.</td>
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<td>2</td>
</tr>
<tr>
<td>A.A.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>B.A. OR B.S.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>M.A. OR M.S.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>J.P., M.D., OR PH.D.</td>
<td>1</td>
<td>2</td>
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</table>

26. NUMBER OF INTERESTS: 

27. NUMBER OF SCHOOLS ATTENDED:

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<tr>
<th>School Type</th>
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<td>combined grade and middle schools</td>
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<td>grade schools</td>
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<tr>
<td>high schools</td>
<td></td>
<td></td>
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<tr>
<td>post secondary</td>
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</tbody>
</table>

28. ALCOHOL OR DRUGS DURING SCHOOL? 1 2

29. ALCOHOL OR DRUGS AFTER SCHOOL? 1 2

SOCIAL AND RECREATIONAL ACTIVITIES

30. PARTICIPATE IN RECREATIONAL ACTIVITIES? 1 2

31. ADULTS IN HOUSEHOLD RECREATIONAL ACTIVITIES? 1 2

RELIGION

31. RELIGIOUS AFFILIATION? 1 2

32. ACTIVE RELIGIOUSLY? 1 2
## PREVIOUS PREGNANCIES / MEDICAL HISTORY / CURRENT PREGNANCY

33. # PREVIOUS PREGNANCIES (If 0, skip to question 44) ........................................ 
34. # VOLUNTARY ABORTIONS ........................................................................... 
35. # SPONTANEOUS ABORTIONS .................................................................. 
36. # MISCARRIAGES ................................................................................... 
37. # STILL BIRTHS ....................................................................................... 
38. # LIVE BIRTHS ....................................................................................... 
39. # PREMATURE BIRTHS .............................................................................. 
40. # FULL-TERM BIRTHS .............................................................................. 

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
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<tbody>
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<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

41. ANY MEDICAL PROBLEMS IN PREVIOUS PREGNANCIES? ...........................................  
42. USE DRUGS IN PRIOR PREGNANCIES? ..................................................................  
43. USE DRUGS BETWEEN PREGNANCIES? ..................................................................  
44. ANY PRIOR HOSPITALIZATIONS? (INCLUDE ONLY HOSPITALIZATIONS UNRELATED TO PREGNANCIES) ........................................  

45. PROBLEMS UNRELATED TO DRUG USE:
   - blackouts ........................................................................................................  
   - sweating ..........................................................................................................  
   - hallucinations ..................................................................................................
   - insomnia ...........................................................................................................  
   - convulsions ......................................................................................................
   - tremors ............................................................................................................
   - .............................................  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

46. PROBLEMS RELATED TO DRUG USE (If no drug use, skip to question 47):
   - blackouts ........................................................................................................  
   - sweating ..........................................................................................................  
   - hallucinations ..................................................................................................
   - insomnia ...........................................................................................................  
   - convulsions ......................................................................................................
   - tremors ............................................................................................................
   - .............................................  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

47. PLANNED PREGNANCY? ..................................................................................  

48. NUMBER OF PREGNATAL VISITS ........................................................................  

49. # MOS. PREGNANT: 
   - Don't know ..................................................................................................
   - 6 wks. ...........................................................................................................
   - 2 mos. ...........................................................................................................
   - 3 mos. ..........................................................................................................  
   - 4 mos. ...........................................................................................................
   - 5 mos. ...........................................................................................................
   - 6 mos. ..........................................................................................................  
   - 7 mos. ...........................................................................................................
   - 8 mos. ...........................................................................................................

50. ESTIMATED DATE OF DELIVERY: .....................................................................  

51. IS EDC BASED ON: 
   - ultrasound ...................................................................................................
   - self-report (dates) .........................................................................................

52. FEEL ABOUT PREGNANCY:
   - happy, excited (positive) ...............................................................................  
   - depressed, sad (negative) ............................................................................
   - other .............................................................................................................  
   - don't know / ambiguous answer ..................................................................  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
53. CONCERNS RELATING TO YOUR PREGNANCY:
Yes ............................................. 1
No .................................................. 2

DRUG HISTORY

54. WHAT AGE BEGAN DRUGS (AND/OR ALCOHOL): ________
(If the client is a control and never took drugs or alcohol, then enter a 99 on the blank and skip to question 87)

55. PRIMARY DRUG:
- alcohol (skip to question 61) ............................................. 1
- cocaine ........................................................................... 2
- marijuana / cannabis .................................................. 3
- PCP ............................................................................... 4
- heroin / other opiates .................................................. 5
- inhalants ........................................................................ 6
- depressants .................................................................... 7
- hallucinogens ................................................................ 8
- stimulants ....................................................................... 9
- other ............................................................................... 0

56. AGE OF FIRST USE: __________

57. ROUTE OF USE: YES NO
- smoke ............................................................................... 1 2
- drink ............................................................................... 1 2
- intranasal .......................................................................... 1 2
- intravenous ....................................................................... 1 2
- other ............................................................................... 1 2

58. FREQUENCY OF USE:
- daily ............................................................................... 1
- several x week ................................................................ 2
- 1x week .......................................................................... 3
- several x month ............................................................ 4
- 1x month ......................................................................... 5
- occasionally ..................................................................... 6

59. AMOUNT OF USE ($ Spent in the Past Month): ________ ________ ________

60. DAYS SINCE LAST USED: __________

61. SECONDARY DRUG:
- alcohol or no secondary drug (skip to question 67) ............... 1
- cocaine ............................................................................ 2
- marijuana / cannabis .................................................. 3
- PCP ............................................................................... 4
- heroin / other opiates .................................................. 5
- inhalants ........................................................................... 6
- depressants ..................................................................... 7
- hallucinogens ................................................................ 8
- stimulants ....................................................................... 9
- other ............................................................................... 0

62. AGE OF FIRST USE: __________
63. ROUTE OF USE:
   smoke .............................................................. 1 2
   drink .............................................................. 1 2
   intranasal ......................................................... 1 2
   intravenous ....................................................... 1 2
   other ............................................................... 1 2

64. FREQUENCY OF USE:
   daily .............................................................. 1
   several x week .................................................. 2
   1x week ........................................................... 3
   several x month ................................................ 4
   1x month .......................................................... 5
   occasionally ...................................................... 6

65. AMOUNT OF USE: (Spent in the Last Month) ...............  

66. DAYS SINCE LAST USED: ...........................................  

67. ALCOHOL USE:
   yes ................................................................. 1
   no (Skip to question 72) ........................................ 2

68. AGE OF 1ST USE: ................................................  

69. FREQUENCY OF USE:
   daily .............................................................. 1
   several x week .................................................. 2
   1x week ........................................................... 3
   several x month ................................................ 4
   1x month .......................................................... 5
   occasionally ...................................................... 6

70. NUMBER OF OUNCES OF ALCOHOL (PER USING DAY): ....  

71. DAYS SINCE LAST USED: ...........................................  

72. LONGEST PERIOD OF ABSTINENCE IN 2 YEARS
   (CONVERT TO DAYS): ............................................  
   If the woman has been abstinent for more than 2 years, enter 999 on the blank.

73. HOW SUPPORT DRUG/ALCOHOL USE:
   public assistance .................................................. 1 2
   work ................................................................. 1 2
   friends ............................................................. 1 2
   prostitution ....................................................... 1 2
   criminal activity ............................................... 1 2
   other ............................................................... 1 2
74. FROM WHOM DO YOU OBTAIN DRUGS? 

<table>
<thead>
<tr>
<th>Option</th>
<th>YES</th>
<th>NO</th>
</tr>
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<tbody>
<tr>
<td>on own</td>
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<td>dealer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>friend</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>father of baby</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>significant other - not father of the baby</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>theft</td>
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<td>2</td>
</tr>
<tr>
<td>other</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>do not use drugs</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

75. DO YOU FEEL ALCOHOL AND DRUGS ARE A PROBLEM? 

1 

76. DO YOU FEEL YOU HAVE LOST CONTROL OF DRUG USE? 

1 

77. DO YOU USE EVERY DAY? 

1 

78. DO YOU USE AT WORK? (Circle 3 if the woman does not work.) 

1 

79. DO YOU USE ALONE? 

1 

80. DO YOU FEEL A NEED TO USE UPON AWAKENING? 

1 

81. CAN YOU STOP WHEN YOU WANT? 

1 

82. # OF PREVIOUS ALCOHOL AND DRUG TREATMENTS? 

83. DO YOU ATTEND SELF-HELP MEETINGS? 

1 

84. DO YOU HAVE A SPONSOR? (If no, skip to question 86.) 

1 

85. ARE YOU IN TOUCH WITH YOUR SPONSOR? 

1 

86. ARE YOU ACTIVE IN THE 12-STEP PROGRAM? 

1 

CURRENT FAMILY STATUS

87. ARE YOU CURRENTLY: 

<table>
<thead>
<tr>
<th>Status</th>
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<tbody>
<tr>
<td>widowed</td>
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<tr>
<td>divorced</td>
<td>2</td>
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<tr>
<td>common law</td>
<td>3</td>
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<tr>
<td>married</td>
<td>4</td>
</tr>
<tr>
<td>never been married</td>
<td>5</td>
</tr>
<tr>
<td>separated</td>
<td>6</td>
</tr>
</tbody>
</table>

88. DO YOU HAVE A SIGNIFICANT RELATIONSHIP? 

yes: 1 

no (skip to question 95): 2 

89. HOW LONG HAVE YOU BEEN WITH THIS SIGNIFICANT RELATIONSHIP? 

<table>
<thead>
<tr>
<th>Duration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months</td>
<td>1</td>
</tr>
<tr>
<td>6-12 months</td>
<td>2</td>
</tr>
<tr>
<td>12-24 months</td>
<td>3</td>
</tr>
<tr>
<td>over 2 years</td>
<td>4</td>
</tr>
</tbody>
</table>

90. ARE YOU LIVING WITH SIGNIFICANT-OTHER? 

yes: 1 

no (skip to question 92): 2 

91. HOW LONG LIVING WITH SIGNIFICANT-OTHER? 

<table>
<thead>
<tr>
<th>Duration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months</td>
<td>1</td>
</tr>
<tr>
<td>6-12 months</td>
<td>2</td>
</tr>
<tr>
<td>12-24 months</td>
<td>3</td>
</tr>
<tr>
<td>over 2 years</td>
<td>4</td>
</tr>
</tbody>
</table>
92. STATUS OF RELATIONSHIP WITH SIGNIFICANT-OTHER?
   close/involved ........................................ 1
   somewhat involved ...................................... 2
   estranged .................................................. 3

93. IS SIGNIFICANT-OTHER A USER?
   yes ............................................................. 1
   no ............................................................... 2

94. IS SIGNIFICANT-OTHER THE FATHER OF YOUR BABY?
   yes ............................................................. 1
   no ............................................................... 2
   don't know .................................................. 3

95. RELATIONSHIP WITH BABY'S FATHER:
   close/involved ............................................ 1
   somewhat involved ...................................... 2
   estranged .................................................. 3

96. WHO DO YOU LIVE WITH NOW?
   children ................................................. 1
   boyfriend or husband .................................. 1
   other friend(s) ......................................... 1
   relatives ................................................ 1
   homeless ................................................ 1
   group-living ............................................ 1
   alone (with or without children) .................. 1
   other .......................................................... 1
   YES NO
   yes ............................................................. 1
   no ............................................................... 2

97. IS HEAD OF HOUSEHOLD IN WHICH YOU ARE NOW LIVING
   EMPLOYED?
   yes ............................................................. 1
   no ............................................................... 2

98. DO FAMILY MEMBERS WANT TO PARTICIPATE IN TREATMENT?
   yes ............................................................. 1
   no ............................................................... 2
   maybe ....................................................... 3
   not in treatment ......................................... 4
   don't know .................................................. 5

99. HOW MANY CHILDREN DO YOU HAVE?
   (If 0, skip to question 103) ..............................

100. HOW OLD WERE YOU AT THE TIME OF YOUR
     FIRST PREGNANCY? ....................................

101. HOW OLD WERE YOU WHEN YOU GAVE BIRTH
     TO YOUR FIRST CHILD? ...............................
Code Custody as Follows:
1 = mom has custody
2 = grandmother
3 = extended family
4 = father's family
5 = friends
6 = DCFS (foster care, group home, or institution)
7 = DCFS & grandmother
8 = DCFS & extended family
9 = DCFS & father's family
10 = DCFS & friends
11 = adoptive parents
12 = other

<table>
<thead>
<tr>
<th>CHILD</th>
<th>DATE OF BIRTH</th>
<th>SEX</th>
<th>CUSTODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>MONTH / DAY / YEAR</td>
<td>M=1/F=2</td>
<td>CODE</td>
</tr>
<tr>
<td>1</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>2</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>3</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>4</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>5</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>6</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>7</td>
<td>___ / ___ / ___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

102. ANY PARTICIPATION BY YOU AND YOUR CHILDREN IN COMMUNITY PROGRAMS?
Yes .................................................. 1
No .................................................. 2

FAMILY HISTORY

CODE THE FAMILY HISTORY SECTION AS FOLLOWS:
1. If the woman never knew her father then:
   a. write 98 on the blanks for question 103
   b. skip the following questions:
      106, 109, 111, 113, & 115
2. If the woman never knew her mother then:
   a. write 98 on the blanks for question 104
   b. skip the following questions:
      105, 108, 110, 112, & 114
3. If the woman's father is deceased:
   a. write 99 on the blanks for question 103
   b. skip the following questions:
      109, 111, 113, & 115
4. If the woman's mother is deceased:
   a. write 99 on the blanks for question 104
   b. skip the following questions:
      108, 110, 112, & 114

103. AGE OF FATHER .................................. ___ ___
104. AGE OF MOTHER ........................................___ ___
105. DESCRIBE YOUR MOTHER:
   positive characteristics ........................................ 1
   negative characteristics ........................................ 2
   both .................................................. 3
106. DESCRIBE YOUR FATHER:
   positive characteristics ........................................ 1
   negative characteristics ........................................ 2
   both .................................................. 3
107. DESCRIBE THE MARITAL AND LIFE STATUS OF YOUR BIOLOGICAL PARENTS:

<table>
<thead>
<tr>
<th>Status</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never married (living apart)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Never married (living together)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Married</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Father deceased</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mother deceased</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Father remarried</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Mother remarried</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

108. HOW OFTEN DO YOU SEE YOUR MOTHER NOW?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>1</td>
</tr>
<tr>
<td>Several times per week</td>
<td>2</td>
</tr>
<tr>
<td>Once a week</td>
<td>3</td>
</tr>
<tr>
<td>Several times per month</td>
<td>4</td>
</tr>
<tr>
<td>Once a month</td>
<td>5</td>
</tr>
<tr>
<td>Several times per year</td>
<td>6</td>
</tr>
<tr>
<td>Once a year</td>
<td>7</td>
</tr>
<tr>
<td>Less than once a year</td>
<td>8</td>
</tr>
</tbody>
</table>

109. HOW OFTEN DO YOU SEE YOUR FATHER NOW?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day</td>
<td>1</td>
</tr>
<tr>
<td>Several times per week</td>
<td>2</td>
</tr>
<tr>
<td>Once a week</td>
<td>3</td>
</tr>
<tr>
<td>Several times per month</td>
<td>4</td>
</tr>
<tr>
<td>Once a month</td>
<td>5</td>
</tr>
<tr>
<td>Several times per year</td>
<td>6</td>
</tr>
<tr>
<td>Once a year</td>
<td>7</td>
</tr>
<tr>
<td>Less than once a year</td>
<td>8</td>
</tr>
</tbody>
</table>

110. HOW DIFFICULT DO YOU FIND IT TO TALK TO YOUR MOTHER ABOUT THINGS THAT BOTHER YOU:

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very difficult</td>
<td>1</td>
</tr>
<tr>
<td>Difficult</td>
<td>2</td>
</tr>
<tr>
<td>Comfortable</td>
<td>3</td>
</tr>
<tr>
<td>Very comfortable</td>
<td>4</td>
</tr>
</tbody>
</table>

111. HOW DIFFICULT DO YOU FIND IT TO TALK TO YOUR FATHER ABOUT THINGS THAT BOTHER YOU:

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very difficult</td>
<td>1</td>
</tr>
<tr>
<td>Difficult</td>
<td>2</td>
</tr>
<tr>
<td>Comfortable</td>
<td>3</td>
</tr>
<tr>
<td>Very comfortable</td>
<td>4</td>
</tr>
</tbody>
</table>

112. HOW CLOSE DO YOU FEEL TO YOUR MOTHER?

<table>
<thead>
<tr>
<th>Closeness</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very close</td>
<td>1</td>
</tr>
<tr>
<td>Close</td>
<td>2</td>
</tr>
<tr>
<td>Distant</td>
<td>3</td>
</tr>
<tr>
<td>Very distant</td>
<td>4</td>
</tr>
</tbody>
</table>

113. HOW CLOSE DO YOU FEEL TO YOUR FATHER?

<table>
<thead>
<tr>
<th>Closeness</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very close</td>
<td>1</td>
</tr>
<tr>
<td>Close</td>
<td>2</td>
</tr>
<tr>
<td>Distant</td>
<td>3</td>
</tr>
<tr>
<td>Very distant</td>
<td>4</td>
</tr>
</tbody>
</table>
114. HOW MUCH DO YOU FEEL YOU CAN RELY ON WHAT YOUR MOTHER TELLS YOU?
   always rely .............................................................. 1
   sometimes rely .......................................................... 2
   never rely ................................................................. 3

115. HOW MUCH DO YOU FEEL YOU CAN RELY ON WHAT YOUR FATHER TELLS YOU?
   always rely .............................................................. 1
   sometimes rely .......................................................... 2
   never rely ................................................................. 3

116. HOW MANY CHILDREN IN YOUR FAMILY? ...................... ____
117. WHAT NUMBER ARE YOU IN THE FAMILY ORDER? .......... ____

118. DID ANYONE IN YOUR IMMEDIATE FAMILY HAVE ANY OF THESE PROBLEMS?

   MOTHER:  
   Drug problems .......................................................... 1  2  
   Alcohol problems ...................................................... 1  2  
   Mental health problems .............................................. 1  2  
   Illness, injury, or handicap ....................................... 1  2  
   Arrested, incarcerated, on probation ............................ 1  2  

   FATHER:  
   Drug problems .......................................................... 1  2  
   Alcohol problems ...................................................... 1  2  
   Mental health problems .............................................. 1  2  
   Illness, injury, or handicap ....................................... 1  2  
   Arrested, incarcerated, on probation ............................ 1  2  

   SIBLINGS: (If no siblings, skip to question 119)  
   Drug problems .......................................................... 1  2  
   Alcohol problems ...................................................... 1  2  
   Mental health problems .............................................. 1  2  
   Illness, injury, or handicap ....................................... 1  2  
   Arrested, incarcerated, on probation ............................ 1  2  

119. HOW MANY CHANGES IN RESIDENCE?
   no changes ................................................................. 1  
   one change ............................................................... 2  
   two changes .............................................................. 3  
   three to five changes ................................................ 4  
   greater than five changes .......................................... 5  

120. DESCRIBE THE HEALTH OF FAMILY MEMBERS IN GENERAL:
   much illness ............................................................. 1  
   some illness ............................................................. 2  
   good health ............................................................... 3  
   excellent health ........................................................ 4  

121. ANY PSYCHIATRIC ILLNESSES IN YOUR FAMILY? ............. 1  2  
122. HAS ANYONE IN YOUR FAMILY ATTEMPTED SUICIDE? ......... 1  2  
123. ARE YOU EXPERIENCING ANY PROBLEMS WITH FAMILY MEMBERS? 1  2
124. HOW SATISFIED ARE YOU WITH HOW WELL YOU GET ALONG
WITH YOUR FAMILY?
very satisfied ........................................... 1
satisfied .................................................... 2
dissatisfied .................................................. 3
very dissatisfied ............................................ 4

MENTAL HEALTH HISTORY

125. DID YOU LOSE ANY IMPORTANT PEOPLE TO VIOLENT DEATH? YES NO
126. IS THERE A HISTORY OF DOMESTIC VIOLENCE IN YOUR HOME? 1 2
127. HAVE YOU EVER TRIED TO HURT YOURSELF? 1 2
128. HAVE YOU EVER BEEN PHYSICALLY ABUSED? 1 2
129. HAVE YOU EVER PHYSICALLY ABUSED ANYONE? 1 2
130. HAVE YOU EVER BEEN SEXUALLY ABUSED? 1 2
131. HAVE YOU EVER SEXUALLY ABUSED ANYONE? 1 2
132. HAVE YOU EVER BEEN RAPED? 1 2
133. DID ANYONE EVER TALK TO YOU REGULARLY IN SUCH A WAY
THAT MADE YOU FEEL WORTHLESS, BAD OR LOW? 1 2
134. DID YOU EVER FEEL UNWANTED OR UNLOVED? 1 2
135. HAVE YOU RECEIVED ANY PSYCHIATRIC TREATMENT? 1 2

PSYCHOLOGICAL STATUS

136. HOW WOULD YOU DESCRIBE YOURSELF?
positive adjectives ........................................... 1
negative adjectives ........................................... 2
both positive and negative .................................... 3

137. WHAT DO YOU CONSIDER YOUR STRENGTHS?
none .......................................................... 1
one .............................................................. 2
two ............................................................... 3
three to five .................................................... 4
greater than five ............................................... 5

138. WHAT DO YOU VIEW AS YOUR SHORTCOMINGS?
none .......................................................... 1
one .............................................................. 2
two ............................................................... 3
three to five .................................................... 4
greater than five ............................................... 5

139. HOW WOULD YOU DESCRIBE YOUR MOOD NOW?
positive ........................................................ 1
negative ......................................................... 2
both .............................................................. 3

140. HOW IS YOUR MEMORY OF THE PAST AND OF THE PRESENT?
positive ......................................................... 1
negative ......................................................... 2
both .............................................................. 3

141. HOW ARE YOU GENERALLY TREATED BY OTHERS?
positive ......................................................... 1
negative ......................................................... 2
both .............................................................. 3
142. DO YOU HAVE ANY COMMUNICATION/RELATIONSHIP PROBLEMS?
- none .................................................. 1
- some .................................................. 2
- many .................................................. 3

143. DO YOU HAVE ANY UNCOMFORTABLE FEELINGS (I.E. ANXIETY, LOW SELF-ESTEEM, DEPRESSION)?
- yes .................................................. 1
- no .................................................. 2

144. DO YOU HAVE CLOSE FRIENDS OTHER THAN YOUR FAMILY?
- yes .................................................. 1
- no .................................................. 2

145. WHEN FACED WITH A STRESSFUL PROBLEM, HOW DO YOU RESPOND?
- confront ............................................. 1
- immobilize ........................................... 2
- withdraw / flee ........................................ 3
- act out .............................................. 4
- other ................................................. 5

146. WHO DO YOU RELY ON?
- father of the baby .................................... 1
- significant-other / not father of the baby ............. 1
- friend .................................................. 1
- mother or father ..................................... 1
- other relative ........................................ 1
- other ................................................. 1

147. WHY ARE YOU SEEKING TREATMENT AT THIS TIME?
- referred or mandated .................................. 1
- welfare of baby ....................................... 1
- woman's own welfare .................................. 1
- not seeking treatment .................................. 1
- other .................................................. 1
APPENDIX B

CONSENT FORMS
NATIONAL ASSOCIATION FOR PERINATAL ADDICTION
RESEARCH AND EDUCATION (NAPARE)

INVESTIGATIVE CONSENT FORM

Dr. Ira J. Chasnoff
Principal Investigator

I understand that the doctors at NAPARE are studying ways to help pregnant women who are using drugs. This study will look at whether residential or intensive outpatient care produces better outcomes for both mothers and their children.

I understand that as a participant in this program, I will be followed and evaluated at scheduled points in time in order to identify if drugs taken during pregnancy may be affecting my pregnancy. I understand that if I am accepted into this study, I will be expected to stop using all drugs. After entering the treatment program, I will either be assigned to a group living in the residential center or I will continue to live at my home.

I also understand that if I am assigned to the residential center, I may be able to keep my children who are up to four years of age with me as space permits. I will also be able to maintain contact with my family and friends. I also understand that the residential center will result in a more intensive drug treatment experience for me.

While I am in treatment at the Family Recovery Center, my urine will be tested for drugs I may have taken, and at my baby's birth, my baby's urine will be tested for drugs. I also understand that if there are signs of abuse or neglect of my child or if my child's urine is positive for drugs at the time of delivery, I will be reported to the Department of Children and Family Services (DCFS) as required by Illinois law.

The behavior and development, including motor development such as crawling and walking, of my child will be observed and tested at birth and at other scheduled intervals. I am assured that these evaluations will be carried out by trained personnel. If any problems are found, I understand that the doctors will explain them to me and advise me as to how best to treat or correct them.

The medical staff will provide health guidance and immunizations for my child up to three years of age. I will not be responsible for the cost of these services; they will be reimbursed through Public Aid and will be handled by Dr. Chasnoff's office.

All information will be kept strictly confidential, and whenever possible it will be used for my child's benefit. I understand that
Investigative Consent Form

I am protected by both Federal and State confidentiality laws. By my participation in this study, my child and I will have the opportunity to benefit from examinations we would otherwise not receive during routine care. Results of all evaluations will be discussed with me and any questions I have will be answered.

I understand I may benefit from the information obtained by learning more about my infant and myself. I understand that the information that this study may produce may also be useful to many other women. I will be making a contribution to knowledge of how pregnant women who are using drugs can be helped.

I have been told that there are no risks to the developmental evaluations and measurements that will be performed with my child. I understand that I will receive tests that will evaluate my mood, energy levels and emotional responses, such as nervousness. Depending upon my evaluations, I may undergo additional psychological tests. These tests may result in stressful psychological reactions. If I would experience any negative reactions, I would be referred to appropriate supportive care.

If I have any further questions related to my participation or my child's participation in this project or if there are any problems associated with this study, I may call LaVon Coate at (312) 850-0050. I understand that I may refuse participation in this study and withdraw my consent at any time. I understand that my signature is a voluntary consent for my infant and I to participate in this study. I have received a copy of this consent form.

Signature of patient ________________________
Name of patient ________________________ Date __________
Date __________ Name of Witness ________________________
Date __________ Signature of Witness ________________________

Page 2 of 2

02/27/91
int/investco.fon
NATIONAL ASSOCIATION FOR PERINATAL ADDICTION
RESEARCH AND EDUCATION (NAPARE)

CONTROL CONSENT FORM

Dr. Ira J. Chasnoff
Principal Investigator

I understand that the doctors at NAPARE are studying ways to help pregnant women who are using drugs. This study will look at whether residential or intensive outpatient care produces better outcomes for both mothers and their children. I will serve as a drug-free comparison for control.

I understand that as a control in this program, I will be followed and evaluated at scheduled points in time. I understand that if I am accepted into this study I will be expected to use no drugs.

When I enter the study, my urine will be tested for drugs I may have taken, and at my baby's birth, my baby's urine will be tested for drugs.

The behavior and development, including motor development such as crawling and walking of my child will be observed and tested at birth and at other scheduled intervals. I am assured that these evaluations will be carried out by trained personnel. If any problems are found, I understand that the doctors will explain them to me and advise me as to how best treat or correct them.

All information will be kept strictly confidential, and whenever possible it will be used for my child's benefit. I understand that I am protected by both federal and state confidentiality laws. By my participation in this study, my child and I will have the opportunity to benefit from examinations we would otherwise not receive during routine care. Results of all evaluations will be discussed with me and any questions I have will be answered.

I understand I may benefit from the information obtained by learning more about my infant and myself. I understand that the information that the study may produce may also be useful to many other women. I will be making a contribution to knowledge of how pregnant women who are using drugs can be helped.

I have been told that there are no risk to the developmental evaluations and measurements that will be performed with my child. I understand that I will receive test that will evaluate my mood, energy levels and emotional responses, such as nervousness. Depending upon my evaluations, I may undergo additional psychological tests. If I would experience any negative reactions to these test I would be referred to appropriate supportive care.

If I have any further questions related to my participation or my child's participation in this project or if there are any problems associated with this study, I may call LaVon Coate at 312-850-0050. I understand that I may refuse participation in this study and withdraw my consent at any time. I understand that my signature is a voluntary consent for my infant and I to participate in this study. I have received a copy of this consent form.

Signature of patient

Name of patient

Date

Name of witness

Signature of witness

05/31/91
dh/consent.for
NAME:

CONSENT FOR PHOTOGRAPHY
AND/OR VIDEO TAPEING
AND RELEASE

1. I/We, the undersigned consenting party/parties, authorize

(Individual requesting or taking photos or video taping)

of National Association for Perinatal Addiction Research and
Education (NAPARE) to photograph and/or videotape:

______

the undersigned.

______

the child of the undersigned__________

child's name

______

the child of the undersigned__________

and the undersigned__________

child's name

2. I/We understand that the photographs and/or video tapes are to
be used for research, diagnostic or educational purposes,
subject to the following restrictions:

(Restrictions; if no restrictions, write "none"

3. I/We hereby release____________________

(Name of person taking photo or video)

and National Association for Perinatal Addiction Research and
Education from all claims or liabilities relating to the
taking or use of the photographs and/or video tapes.

DATE: ________________

TIME: ________________ A.M.

P.M.

WITNESS: __________________ IF CONSENTING PARTY IS OTHER

THAN PATIENT: ________________

L2/photocon
APPENDIX C

CLIENT TRACKING FORM
### Client Tracking

**Client Name:** ____________  **ID Number:** ____________

**Date of Entry:** ____________  **First Month:** ____________

<table>
<thead>
<tr>
<th>Month</th>
<th>Program Code: Level</th>
<th>Living Situation Code:</th>
<th>Oth P in HH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name &amp; Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drug Use Contacts Code</td>
<td>Crisis Code</td>
<td>Custody of Children: (Names and Codes)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Program Code: Level</th>
<th>Living Situation Code:</th>
<th>Oth P in HH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name &amp; Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drug Use Contacts Code</td>
<td>Crisis Code</td>
<td>Custody of Children: (Names and Codes)</td>
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</tbody>
</table>

<table>
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<th>Program Code: Level</th>
<th>Living Situation Code:</th>
<th>Oth P in HH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name &amp; Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drug Use Contacts Code</td>
<td>Crisis Code</td>
<td>Custody of Children: (Names and Codes)</td>
</tr>
</tbody>
</table>

<table>
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<th>Program Code: Level</th>
<th>Living Situation Code:</th>
<th>Oth P in HH</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Name &amp; Location</td>
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<tr>
<td></td>
<td>Drug Use Contacts Code</td>
<td>Crisis Code</td>
<td>Custody of Children: (Names and Codes)</td>
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</table>
### CLIENT TRACKING FORM

#### Coding Key

<table>
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<tr>
<th>Program Type</th>
<th>Level of Treatment</th>
<th>Living Situation (Where?)</th>
<th>Other P in Hl (Who?)</th>
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<tbody>
<tr>
<td>1. outpatient</td>
<td>1. fully (75-100%)</td>
<td>1. own apartment</td>
<td>1. own children</td>
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<tr>
<td>2. inpatient</td>
<td>2. partially (40-74%)</td>
<td>2. transitional shelter</td>
<td>2. other children</td>
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<tr>
<td>3. detox</td>
<td>3. barely (1-39%)</td>
<td>3. recovery home</td>
<td>3. significant other</td>
</tr>
<tr>
<td>4. recovery</td>
<td>4. dropped out by choice</td>
<td>4. inpatient</td>
<td>4. spouse (legal)</td>
</tr>
<tr>
<td>5. none</td>
<td>5. completed</td>
<td>5. homeless</td>
<td>5. other relatives (includes his family)</td>
</tr>
<tr>
<td>6. AA</td>
<td>6. none</td>
<td>6. family of origin</td>
<td>6. family of origin</td>
</tr>
<tr>
<td>7. other</td>
<td>7. not applicable</td>
<td>7. other relatives</td>
<td>7. friends</td>
</tr>
<tr>
<td>8. multiple</td>
<td>8. multiple</td>
<td>8. friends</td>
<td>8. alone</td>
</tr>
<tr>
<td>9. asked to leave</td>
<td>9. other (includes drug house, group living)</td>
<td>9. other (includes drug house, group living)</td>
<td>9. other (includes drug house, group living)</td>
</tr>
<tr>
<td>10. multiple</td>
<td>10. multiple</td>
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<table>
<thead>
<tr>
<th>Drug Use</th>
<th>Contacts</th>
<th>Crises</th>
<th>Custody of Children</th>
<th>Employment, Education &amp; Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. positive urine</td>
<td>1. none</td>
<td>A. health</td>
<td>1. client has custody</td>
<td>1. none</td>
</tr>
<tr>
<td>2. self-report</td>
<td>2. phone</td>
<td>B. family and relationships</td>
<td>2. grandmother</td>
<td>2. employed full-time</td>
</tr>
<tr>
<td>3. suspected use</td>
<td>3. letter</td>
<td>C. work and money</td>
<td>3. mother's family</td>
<td>3. employed part-time</td>
</tr>
<tr>
<td>4. unknown</td>
<td>4. visit</td>
<td>D. housing</td>
<td>4. father's family</td>
<td>4. student full-time</td>
</tr>
<tr>
<td>5. other</td>
<td>5. office</td>
<td>E. mental health</td>
<td>5. friends</td>
<td>5. student part-time</td>
</tr>
<tr>
<td>6. multiple (includes family)</td>
<td>6. other</td>
<td>F. death</td>
<td>6. DCFS (foster care, group home or institution)</td>
<td>6. training full-time</td>
</tr>
<tr>
<td>7. multiple</td>
<td>7. multiple</td>
<td>G. custody</td>
<td>7. DCFS &amp; grandmother</td>
<td>7. training part-time</td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td>H. treatment issues</td>
<td>8. DCFS &amp; mother's family</td>
<td>8. other (includes maternity leave)</td>
</tr>
<tr>
<td>1. control (test or illicit)</td>
<td></td>
<td>I. drug use crisis</td>
<td>9. DCFS &amp; father's family</td>
<td></td>
</tr>
<tr>
<td>a. social - still has control</td>
<td></td>
<td>J. victim of crime</td>
<td>10. DCFS &amp; friends</td>
<td></td>
</tr>
<tr>
<td>b. social - increase in the pattern of use</td>
<td></td>
<td>K. other</td>
<td>11. adoptive parents</td>
<td></td>
</tr>
<tr>
<td>c. social - loss of control</td>
<td></td>
<td>L. unknown</td>
<td>12. father</td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td>13. DCFS &amp; father</td>
<td></td>
</tr>
<tr>
<td>d. sober - only cigarette, appropriate OTC</td>
<td></td>
<td></td>
<td>14. other</td>
<td></td>
</tr>
<tr>
<td>e. relapse - one time use (binge or drink) but regained control</td>
<td></td>
<td></td>
<td>15. multiple</td>
<td></td>
</tr>
<tr>
<td>f. return to use - resume pattern or loss of control or two consecutive uses</td>
<td></td>
<td></td>
<td>16. unknown</td>
<td></td>
</tr>
<tr>
<td>g. never abstained</td>
<td></td>
<td></td>
<td>17. no children</td>
<td></td>
</tr>
<tr>
<td>Drug Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td>A. health</td>
<td>1. client has custody</td>
<td>1. none</td>
</tr>
<tr>
<td>2. self-report</td>
<td></td>
<td>B. family and relationships</td>
<td>2. grandmother</td>
<td>2. employed full-time</td>
</tr>
<tr>
<td>3. suspected use</td>
<td></td>
<td>C. work and money</td>
<td>3. mother's family</td>
<td>3. employed part-time</td>
</tr>
<tr>
<td>4. unknown</td>
<td></td>
<td>D. housing</td>
<td>4. father's family</td>
<td>4. student full-time</td>
</tr>
<tr>
<td>5. other</td>
<td></td>
<td>E. mental health</td>
<td>5. friends</td>
<td>5. student part-time</td>
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<tr>
<td>6. multiple (includes family)</td>
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</tr>
<tr>
<td>Description</td>
<td></td>
<td>H. treatment issues</td>
<td>8. DCFS &amp; mother's family</td>
<td>8. other (includes maternity leave)</td>
</tr>
<tr>
<td>1. control (test or illicit)</td>
<td></td>
<td>I. drug use crisis</td>
<td>9. DCFS &amp; father's family</td>
<td></td>
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<tr>
<td>a. social - still has control</td>
<td></td>
<td>J. victim of crime</td>
<td>10. DCFS &amp; friends</td>
<td></td>
</tr>
<tr>
<td>b. social - increase in the pattern of use</td>
<td></td>
<td>K. other</td>
<td>11. adoptive parents</td>
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</tr>
<tr>
<td>c. social - loss of control</td>
<td></td>
<td>L. unknown</td>
<td>12. father</td>
<td></td>
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<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td>13. DCFS &amp; father</td>
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<tr>
<td>d. sober - only cigarette, appropriate OTC</td>
<td></td>
<td></td>
<td>14. other</td>
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<tr>
<td>e. relapse - one time use (binge or drink) but regained control</td>
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<td>15. multiple</td>
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<tr>
<td>f. return to use - resume pattern or loss of control or two consecutive uses</td>
<td></td>
<td></td>
<td>16. unknown</td>
<td></td>
</tr>
<tr>
<td>g. never abstained</td>
<td></td>
<td></td>
<td>17. no children</td>
<td></td>
</tr>
</tbody>
</table>

**Instructions**

- **Month**: Put in the year on each page. At some point we will have several Junes, for example.
- **Codes**: If multiple, use the multiple code followed by the changes within ( ). Separate the changes with hyphens and make sure they are listed sequentially (4-3-2) in the program section across the client started the month in a recovery home, went to a detox setting and ended up in an inpatient program.
- **Other**: Must be a notation along with the code, back side okay.
- **Drug Use**: For example, "(2-3-4) means multiple (self-reported one-time use, family and you suspect other uses which she denies) "To" means the client is drinking with friends on the weekends.
- **Crises**: The Housing code refers to situations within her existing domicile. Examples would include being asked to leave, leaving an unsafe situation.
- **Program**: Record must start and stop dates. Account for any missing time. Request the activity level of the program, 2x weekly, 5x weekly, etc.
- **Contacts**: All notes should be on these sheets.
- **Other Persons in Household**: Follow up on the previous month. Who was in the house last and for how long? Was she ever separated from the kids? Did she "go to the store?"

CURRENT AS OF 9/27/93
Tracking Data Summary DOB to DOFB

Client: ________________________________

1. ID: ________________________________

2. Residential Days: ____________________

3. Outpatient Days: ____________________

4. Total Days: __________________________

Treatment Level: 1 = none/dropped out
                 2 = barely
                 3 = partially
                 4 = fully

5. Treatment Level Month 1: ______________

6. Treatment Level Month 2: ______________

7. Treatment Level Month 3: ______________

8. Treatment Level Month 4: ______________

9. Treatment Level Month 5: ______________

10. Treatment Level Month 6: ______________

11. Treatment Level Month 7: ______________

12. Treatment Level Month 8: ______________

13. Treatment Level Month 9: ______________

14. Treatment Level Month 10: _____________

15. Treatment Level Month 11: _____________

16. Treatment Level Month 12: _____________

17. No. of Negative Urines: ________________

18. No. of Positive Urines: ________________
APPENDIX E

PARENT-CHILD EARLY RELATIONAL ASSESSMENT SCALES
AND VARIABLES
Parent-Child Early Relational Assessment  
(Clark, 1985)  
12 Month Free Play  
(N=359)

### Scale I - Maternal Positive Affective Involvement and Responsiveness

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<thead>
<tr>
<th>Scale</th>
<th>Item</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>expressive, non-flat voice tone</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>warm, kind tone of voice</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>expressed positive affect</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>lack of depressed, withdrawn mood</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>enthusiastic mood</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>enjoyment, pleasure</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>visual contact</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>amount of verbalization</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>quality of verbalizations</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>expressed positive affect</td>
<td>11</td>
</tr>
<tr>
<td>11</td>
<td>contingent responsivity to positive behavior</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>structures &amp; mediates environment</td>
<td>21</td>
</tr>
<tr>
<td>13</td>
<td>sensitivity, reads cues and responds</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>social initiative</td>
<td>23</td>
</tr>
<tr>
<td>15</td>
<td>connectedness</td>
<td>24</td>
</tr>
<tr>
<td>16</td>
<td>creativity</td>
<td>26</td>
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### Scale II - Maternal Negative Affect and Behavior

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<th>Item</th>
<th>Alpha</th>
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<tbody>
<tr>
<td>1</td>
<td>angry hostile tone of voice</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>cold/distant tone of voice</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>expressed negative affect</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>angry, hostile mood</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>anxious mood</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>displeasure</td>
<td>11</td>
</tr>
<tr>
<td>7</td>
<td>negative physical contact</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>contingent responsivity</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>lack of sensitivity &amp; responsivity</td>
<td>22</td>
</tr>
<tr>
<td>10</td>
<td>rigidity</td>
<td>25</td>
</tr>
<tr>
<td>11</td>
<td>intrusiveness</td>
<td>27</td>
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<tr>
<td>12</td>
<td>inconsistency/unpredictability</td>
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### Scale III - Infant Organization, Communicative and Social Skills

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</thead>
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<td>30</td>
<td>expressed positive affect</td>
<td>46</td>
</tr>
<tr>
<td>31</td>
<td>happy, pleasant, cheerful mood</td>
<td>47</td>
</tr>
<tr>
<td>32</td>
<td>no apathetic, withdrawn mood</td>
<td>48</td>
</tr>
<tr>
<td>33</td>
<td>no sober/serious mood</td>
<td>50</td>
</tr>
<tr>
<td>34</td>
<td>alertness</td>
<td>53</td>
</tr>
<tr>
<td>35</td>
<td>social initiative</td>
<td>55</td>
</tr>
<tr>
<td>36</td>
<td>social responsiveness</td>
<td>56</td>
</tr>
<tr>
<td>37</td>
<td>motoric competence &amp; quality</td>
<td>57</td>
</tr>
<tr>
<td>38</td>
<td>exploratory play</td>
<td>49</td>
</tr>
<tr>
<td>39</td>
<td>attentional abilities</td>
<td>50</td>
</tr>
<tr>
<td>40</td>
<td>robustness</td>
<td>31</td>
</tr>
<tr>
<td>41</td>
<td>persistence</td>
<td>43</td>
</tr>
<tr>
<td>42</td>
<td>self-regulation/organizational capacity</td>
<td>49</td>
</tr>
<tr>
<td>43</td>
<td>lack of passivity/lethargy</td>
<td>50</td>
</tr>
<tr>
<td>44</td>
<td>communicative competence</td>
<td>48</td>
</tr>
<tr>
<td>45</td>
<td>readability</td>
<td>47</td>
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</table>

### Scale IV - Infant Dysregulation, Negative Affect and Behavior

<table>
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<th>Scale</th>
<th>Item</th>
<th>Alpha</th>
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</thead>
<tbody>
<tr>
<td>31</td>
<td>expressed negative affect</td>
<td>43</td>
</tr>
<tr>
<td>32</td>
<td>irritable, angry mood</td>
<td>49</td>
</tr>
<tr>
<td>33</td>
<td>emotional lability</td>
<td>50</td>
</tr>
<tr>
<td>34</td>
<td>aggressivity</td>
<td>43</td>
</tr>
<tr>
<td>35</td>
<td>impulsivity</td>
<td>49</td>
</tr>
<tr>
<td>36</td>
<td>lack of self regulation, organizational capacity</td>
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### Scale V - Dyadic Mutuality and Reciprocity

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<th>Item</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>lack of flat, empty, constricted affect</td>
<td>63</td>
</tr>
<tr>
<td>59</td>
<td>enthusiasm, joie de vivre</td>
<td>65</td>
</tr>
<tr>
<td>60</td>
<td>reciprocity</td>
<td>63</td>
</tr>
<tr>
<td>61</td>
<td>state similarity</td>
<td>65</td>
</tr>
</tbody>
</table>

### Scale VI - Dyadic Tension

<table>
<thead>
<tr>
<th>Scale</th>
<th>Item</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>anger, hostility</td>
<td>64</td>
</tr>
<tr>
<td>59</td>
<td>tension, anxiety</td>
<td>65</td>
</tr>
<tr>
<td>60</td>
<td>disorganization</td>
<td>64</td>
</tr>
<tr>
<td>61</td>
<td>state dissimilarity</td>
<td>65</td>
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</tbody>
</table>
APPENDIX F

PERMISSION LETTERS
October 6, 1994

Ira J. Chasnoff, M.D.
President
NAPARE
200 N. Michigan Avenue
Chicago, Illinois 60607

Dear Dr. Chasnoff:

As you know, I am completing a doctoral dissertation at Loyola University, Chicago entitled "The Affective Quality of Relationships Between Mothers Recovering From Cocaine/Polydrug Addiction and Their 12-Month-Old Infants." The data set for this dissertation was collected as a part of NIDA Grant No.: DAO6373. This letter confirms that as principal investigator you granted me the permission to collect and use data from the following project measures in this dissertation:

Addiction Severity Index
Adult Basic Learning Examination
Adult Adolescent Parenting Inventory
Bayley Scales of Infant Development
Beck Depression Index
Maternal Developmental Expectations and Childrearing Attitudes

Scale
Maternal History Interview
NAPARE Bio-Psycho-Socio Assessment
NAPARE Tracking Form for Recovering Mothers
Parent-Child Early Relational Assessment
Rosenberg Self-Esteem Scale
Symptom Distress Checklist 90-Revised
Wechsler Adult Intelligence Scale-Revised
Working Model of the Child Interview
Ira J. Chasnoff, M.D.
October 6, 1994

In addition, I would like permission to reprint in the appendix of my dissertation the following forms and instruments:

Investigative Consent Form
Control Consent Form
Consent for Photography and/or Videotaping and Release
Client Tracking Form
Tracking Data Summary
NAPARE BioPsychoSocio Assessment

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by University Microfilms, Inc. These rights will in no way restrict publication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own the copyright to the above-described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you very much.

Sincerely,

Jane R. VanBremen

PERMISSION GRANTED FOR THE USES REQUESTED ABOVE:

[Signature]
Ira J. Chasnoff, M.D.

Date: 10/6/94
October 6, 1994

Roseanne Clark, Ph.D.
Department of Psychiatry
University of Wisconsin-Madison
B6/210 Clinical Science Center
600 Highland Avenue
Madison, WI 53792-2475

Dear Dr. Clark:

I am completing a doctoral dissertation at Loyola University, Chicago entitled "The Affective Quality of the Relationships Between Mothers Recovering From Cocaine/Polydrug Addiction and Their 12-Month-Old Infants." I would like your permission to reprint in the appendix of my dissertation the Parent-Child Early Relational Assessment "12 Month Free Play" scales (attached).

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by University Microfilms, Inc. These rights will in no way restrict publication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own the copyright to the above-described material.

This letter will also confirm that you granted permission for me to use the Parent-Child Early Relational Assessment (Clark, 1985) in this dissertation research which was completed in conjunction with the National Institutes on Drug Abuse Grant No. DA06373, "Residential Care: Cocaine/Polydrug Using Pregnant Women." This grant was under the auspices of the National Association of Perinatal Addiction Research and Education (NAPARE) and Ira J. Chasnoff, M.D., was the Principal Investigator.
Roseanne Clark, Ph.D.
October 6, 1994

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you very much.

Sincerely,

Jane R. VanBremen

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE:

Roseanne Clark, Ph.D.

Date: Oct 12, 1994
REFERENCES


VITA

The author, Jane Reed VanBremen, was born in Washington, D.C. She received a B.A. degree from the Pennsylvania State University and a M.S. degree from Central Connecticut State University. She completed a postgraduate certification program in early childhood special education at George Mason University and is a graduate of the Infant Studies Program at Erikson Institute.

Ms. VanBremen was employed as a child development specialist by the National Association for Perinatal Addiction Research and Education (NAPARE) from 1989 to 1994. She designed and implemented the parenting component of NAPARE's National Institutes on Drug Abuse grant entitled: "Residential Care: Cocaine/polydrug-using pregnant women." She has been a trainer, speaker, and author on the issue of maternal substance abuse. Previously, she was an early childhood special educator with the Fairfax County, VA public schools, and adjunct professor at George Mason University.

Ms. VanBremen is a member of the Council for Exceptional Children, the Society for Research in Child Development, the National Association for the Education of Young Children, and the World Association for Infant Psychiatry and Allied Disciplines.
The dissertation submitted by Jane Reed VanBremen has been read and approved by the following committee:

Dr. Robert Halpern  
Professor, Erikson Institute  
Loyola University, Chicago  

Dr. Ronald Morgan  
Associate Professor, Curriculum, Instruction and Educational Psychology  
Loyola University, Chicago  

Dr. Frances Stott  
Professor and Dean of Graduate Studies, Erikson Institute  
Loyola University, Chicago  

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date: 11/16/91  
Director's Signature:  

[Handwritten Signature]