Promises to Keep: Assessing Affective and Behavioral Qualities of Mother-Child Relationships in the New Chance Observational Study

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Aid to Dependent Children, the precursor of AFDC, was established in 1935 as a way of providing financial assistance to widows so that they would be free to parent their children. The focus at the time was on strengthening and maintaining mother-child relationships in these stressed families. Modern welfare-to-work programs have generally been designed to change the lives of families through maternal education and job training. Evaluation, consequently, has often focused on maternal educational attainment and employment status. The New Chance Demonstration, the program that we will be addressing in this paper, was designed by Manpower Demonstration Research Corporation (MDRC) with additional goals in mind: New Chance was a comprehensive two-generation demonstration program, seeking to address the needs of both young mothers on welfare and their children (Quint, Fink & Rowser, 1991; Quint, Polit, Bos, & Cave, 1994). Because of this renewed focus on children and mother-child relationships, MDRC designed the evaluation component of New Chance to include an embedded observational study. The Observational Study allowed a more in-depth look at mother-child relationships and child outcomes in a subset of the participants from the full New Chance sample. As a part of the Observational Study, we at the University of Minnesota coded videotaped interactions of the mothers and their children working together on a series of Teaching Tasks in order to examine

the effects of New Chance on behavioral and affective qualities of the mother-child relationships. Because the full evaluation included instruments that relied on the report of the mothers, survey interviewers, and in some cases the children's teachers, we also have a unique opportunity to examine methodological contributions of observational techniques to our understanding of the effects of the New Chance program.

The New Chance Demonstration

The Program

The New Chance Demonstration targeted a particularly high-risk group of mothers and children: women receiving AFDC who were teenagers at the birth of their first children, and who had not completed a high school degree or GED. New Chance was a voluntary program, and interested mothers were randomly assigned into either the New Chance program or a control group. Those mothers in the control group did not receive any services from New Chance, but they were free to seek other services in the community if they wished. This random assignment allowed for an experimental design in the evaluation of program effects. The full New Chance evaluation encompassed 16 sites of the demonstration across many states. In contrast, the Observational Study focused more intensively on 7 of the sites by introducing an extra home visit that included the aforementioned videotaped observation of mother-child interaction.

New Chance was both a comprehensive and intensive program. Consequently, the mothers assigned to the New Chance program had a wide variety of services available to them, including basic education classes, job skills training, life skills training, individual and group counseling, family planning, health care services and parenting classes. For the children, New

Chance provided child care assistance, either in the form of on-site daycare or through assistance to the mother in locating available child care services. Children also received enhanced pediatric care, and it was hoped that the parenting classes for the mothers would benefit the children indirectly.

New Chance provided up to 18 months of services and 6-12 months of follow-up services to each family. In practice participation varied, as the voluntary nature of the program components allowed mothers to choose the services they felt would benefit them the most. Within the Observational Study sample, the most intensively sought service was basic education: 84% of the mothers assigned to New Chance participated in basic educational services, for an average total of 112 hours. While 80% of the mothers participated in employability development activities, participation averaged only 24 hours. 80% of mothers also participated in parenting classes, but the average number of total hours of participation was even lower, only 17 hours.

Thus we can see from the outset that the primary goal of mothers assigned to the New Chance program was not improved parenting skills, but rather educational attainment. This knowledge tempers our expectations about the effects that assignment to the New Chance program should have on parenting behavior.

The Use of Observation in Evaluation

Collecting data through multiple methods has long been seen as desirable in psychological research. Particularly in the context of relationships research, different reporters bring different strengths and liabilities to their reports. New Chance used three sources for its data on affective and behavioral qualities of the mother-child relationships: reports from the mothers, reports that combined input from the mothers and from survey interviewers, and reports

from trained observers (developmental psychologists) who viewed videotapes of mother-child interaction.

Maternal report and the report of survey interviewers each have strengths and liabilities as sources of information. Mothers know their children well and can report on a wide variety of situations, not just the behaviors that are evident during one assessment. A drawback to maternal report, however, is its subjective nature. Mothers may be “too close” to the situation to see some interaction patterns, and social desirability may lead some mothers to over-represent positive qualities. Survey interviewers have the advantage of actually seeing, from a more objective perspective, the circumstances of the home and the natural context in which the mother and child are interacting. The interviewers are at somewhat of a disadvantage, however, because they often have personal experience rather than professional training as the foundation for their judgments.

Although structured observational paradigms also have strengths and limitations, they add an important, unique perspective to the New Chance evaluation. First, videotapes allows for close viewing and reviewing of material. Second, the structured tasks allow for the creation of a mildly stressful situation in which maintaining socially desirable behavior becomes more difficult. Third, the training of the observers allows for professional assessment of subtle behaviors. There are of course some disadvantages to observational techniques in that the level of stress created may vary across dyads, and the fielding and coding of observational measures is often logistically difficult and expensive. As you will see in this paper, however, the information that the observations yield adds a valuable perspective to evaluation.

Method

Participants

The Observational Study included a subsample of 290 young women and their children, representing both the New Chance experimental group (n=184) and the control group (n=106) at 7 sites of the evaluation. One child was designated as a "target child" within each family. This was the child about whom all survey questions were asked, and who also participated in the observational session. The mothers were primarily African-American, all were teenagers at the birth of their first children, they had not graduated from high school at the time of random assignment, and they were receiving AFDC. At the time of the observation, the children were between 2 and 5 years old. Sample size may vary slightly across analyses due to missing data for some participants at some time points.

Timeline of the New Chance Observational Study

The New Chance Observational Study evaluation encompassed data collection at several points in time, each time including both the women assigned to New Chance and the women assigned to the control group (see Figure 1). The timing of measures that are relevant for the data presented here is as follows: Mothers completed an initial background interview about themselves and their children at a baseline assessment, when they were recruited for the New Chance Observational Study. Eighteen months after baseline, the mothers were interviewed about their lives and their relationships with their children, and at this time interviewers also reported on their impressions of the home environment and the interactions between the mother and child. At approximately 21 months after baseline, the mothers and children were videotaped in a structured observation in their homes that consisted of a book reading and a series of

Teaching Tasks, during which the mother was asked to instruct and work with her child to solve a series of problems. At 42 months after baseline, mothers and teachers (for those children who were in a school setting) completed paper and pencil measures of child positive behaviors and child behavior problems.

Interview Assessments

Baseline Interview

At baseline, the mothers were interviewed by survey interviewers and filled out paper and pencil measures. They answered questions regarding topics such as demographic information, education and literacy, employment and AFDC history, and psychosocial characteristics.

18-month Interview

At 18 months after random assignment, mothers were again interviewed by survey interviewers and filled out paper and pencil measures. At this assessment they answered questions with regard to issues such as demographic information, education and literacy, earnings from employment, fertility, child care, psychosocial characteristics, contact with the child's father, and substance use and abuse. The mothers also answered questions regarding parenting issues, such as stress, punitiveness, and warmth with their children. The interviewer made observations using the short form of the HOME Inventory (Caldwell & Bradley, 1984), a standard measure of the home environment and mother-child interaction that involves both interviewer observations and maternal report.

42-month Assessment

At 42 months after random assignment mothers were asked to complete two paper and pencil measures reporting on their children's behavior: The Positive Behavior Index, which

assesses social and emotional competence, and the Behavior Problems Index (Zill, 1985), which assesses externalizing and internalizing behaviors. In cases where the child was already in school, the child's teacher also completed slightly modified versions of these measures. The subscales that we will use in analyses for this paper are presented in Table 1.

The Observational Assessment

The Teaching Tasks

The Teaching Tasks (Harrington, Block & Block, 1978) included a block building task in which the mother was asked to get her child to build large blocks that resemble a model block by putting together smaller pieces; a task where the mother tried to get the child to name as many things as he or she could that have wheels; a sorting task where the mother was asked to have her child sort plastic chips on a grid by color, shape and size; and a maze task where the mother was asked to get her child to draw a line through a maze that was printed on an Etch-a-Sketch without crossing the lines of the maze (see Table 2).

Coding of Affective and Behavioral Qualities of Mother-Child Interaction

In our lab at the University of Minnesota we coded the observational sessions for affective and behavioral qualities of the mother-child relationship. Sessions were coded on a series of 14 rating scales (see Table 3) assessing maternal, child and dyadic behavior and affect, as well as on a checklist of infrequent yet salient occurrences (Egeland, Weinfield, Hiester, Lawrence, Pierce, Chippendale, & Powell, 1995; Rahe, 1984). An additional scale, capturing maternal Harsh Treatment of the child during the session, was derived from the Mother's Hostility rating scale and checklist items that indicated maternal punitive or coercive behaviors.

Because of the large number of rating scales, many of the analyses presented in this paper will use only a subset of the rating scales.

Validity of the Multi-method Approach

One of the goals of the embedded Observational Study in New Chance was to evaluate the power of observation as an assessment technique that provides information above and beyond maternal and interviewer report.

In a monograph reporting the findings from the New Chance Observational Study (Zaslow & Eldred, 1998), Zaslow and her colleagues and Child Trends (Zaslow, Dion, & Morrison, 1998) report on the relation between the maternal report measures of parenting, the HOME Inventory, and observational measures (both affective and literacy related). While all the measures are related, these relations are moderate, indicating that each measure provides some independent information. In addition, Zaslow et al. describe the value of using observation to predict 42 month child outcomes above and beyond maternal report of parenting and joint maternal and interviewer report of the home environment and mother-child relationship (HOME Inventory). For almost half of the outcomes, observational measures did add to the prediction of child outcomes.

In a modified approach to the same question, Weinfield and Egeland (1997) looked at the predictive value of the Minnesota observational coding scales with relation to maternal report of parenting and the HOME Inventory. In this analysis, however, outcomes were limited to teacher report of child internalizing and externalizing behaviors (rather than including maternal report of outcomes) in order to avoid shared method variance. In addition, the sample was restricted to those children who were already in a school setting (rather than a daycare setting) at the 42

month assessment in order to improve on the quality of the outcome reporting. In these analyses, the observational measures added significantly to the prediction of all of the child outcomes, above and beyond non-significant contributions of maternal report and modest contributions of the HOME Inventory. The evidence, therefore, is substantial that the observational methodology is a powerful addition to a multi-method assessment approach.

Plan of Analysis

We will present analyses on the intervention effects that are evident from the affective and behavioral observational coding scheme, first using the observational variables as indicators of program effects, and subsequently using them as predictors of 42 month child outcomes.

The examination of program effects on mother-child interaction at the observation will include both overall experimental-control differences, and differences that are apparent within subgroups of higher or lower risk participants as measured at baseline. In this way, we can look not only at overall effectiveness of the intervention, but also at the characteristics at baseline that may have contributed to differential outcomes in the intervention.

The observational variables will also be used to examine the relation between mother-child interaction at 21 months and the child outcomes at 42 months. These analyses are not repeated measures analyses -- we have different measures at the 21 month observational session and the 42 month follow-up, and different reporters. What we are looking at is continuity in adaptation over time. Continuity has long been an important issue in developmental psychology (Rutter, 1987; Sroufe, 1979). The idea that individuals have an underlying, personal coherence to their development over time, and that behavior and psychological functioning should be related systematically to previous or subsequent behavior and functioning, are among the most often

explored tenets of developmental psychology. The concept of continuity of adaptation is based on an organizational approach to developmental research. Described by Sroufe and others (e.g., Sroufe, 1979), the organizational approach posits that rather than looking at the same behaviors at different points of development, the best way to assess developmental continuity is to look at different yet conceptually related developmental tasks over time. We will be looking at whether there is a significant relation over time between qualities of mother-child interaction and later reports of child behavior. In addition, we will be looking to see if assignment to the New Chance Demonstration has an impact upon the continuity between these two assessments.

Results Part I: Observation as Outcome

Impacts of New Chance on the Observational Scales

Table 4 shows analyses comparing those participants who were assigned to the New Chance experimental group with those participants who were in the control group on the Minnesota coding scales from the Teaching Tasks. There was a difference between the New Chance experimental and control groups on one of the scales: Mother's Harsh Treatment. Mothers in the New Chance experimental group displayed significantly fewer harsh behaviors toward their children in the Teaching Task session than mothers in the control group. This finding should alert the reader to two pieces of information: first, we did see some changes in mothers' behavior at the time of the observational assessment that can be attributed to New Chance; second, we did not see any significant impact on child behavior at that time.

Impacts of New Chance for Baseline Subgroups

We examined New Chance subgroup impacts on a representative subset of the Minnesota Teaching Task Scales. We report here findings for the three scales that had multiple significant subgroup findings: Harsh Treatment, Child Compliance, and Quality of Relationship. Tables 5a-5c show the significant subgroup findings for these scales.

Mother's Harsh Treatment

There were many significant subgroup findings for this observational variable. The subgroup findings show positive program impacts for both low- and high-risk subgroups in New Chance, representing a broad effect across almost all participants. Two lower-risk subgroups who experienced positive New Chance impacts, for example, were mothers who reported feeling a higher level of control over their lives, and mothers who had been employed at some point in their lives. Two examples of higher-risk subgroups with positive program impacts were mothers who had less than an 11th-grade education or whose youngest child was less than one year old at baseline. The subgroup analyses support the overall finding that the New Chance Program had a broad impact on reducing the amount of harsh treatment in the mother-child relationships.

Child's Compliance

Surprisingly, findings for this scale revealed that, for some subgroups, children of mothers in the experimental group showed less compliance at the observation than children of mothers in the control group. Specifically, the subgroups were those in which the children were age 4 or 5 at the time of the observation, where the mother had more than one child at baseline, where the mother lived with a partner at baseline, and where the mother was at some risk for depression. These subgroups seem to represent mothers who had many demands on their personal resources at baseline. The New Chance program may have introduced additional

demands on these families, resulting in some disruption of the mother-child relationships, and consequently less compliance from the children.

Quality of Relationship

Dyads in the New Chance experimental group had higher scores than dyads in the control group for three of the baseline subgroups: where the child was three years old at the time of the observation (the target age for the Teaching Tasks), where the mother had only one child at baseline, and where the mothers had an 8th-or 9th-grade TABE reading score, a measure of reading ability. Being in one of these subgroups might indicate lower risk, and the finding may represent an intervention effect for the more advantaged subgroups. The New Chance Program seems to have increased the affective quality of the mother-child relationship for dyads in these subgroups.

Mother and Interviewer Reports of the Mother-Child Relationship

The picture of the impacts of New Chance on mother-child relationships in the Observational Study sample would be incomplete without recounting impacts identified through maternal report and the HOME Inventory. These impacts are reported by Morrison, Zaslow, and Dion (1998) in the Observational Studies monograph. Briefly, they found significant positive program impacts on Maternal Warmth (mother reported) and both the Emotional Support and Total scores from the HOME Inventory (joint maternal and survey-interviewer report).

Both of these measures contain a maternal self-report element, something that is not present in the observational coding scales. It seems, then that mothers in the experimental group perceived themselves as doing better in terms of warmth and support with their children than mothers in the control group. Survey interviewers also perceived the experimental mothers as

more warm. These reports are, of course, important findings for the New Chance Demonstration. As we mentioned earlier, however, the observational coding scales were better predictors of child outcomes than either the maternal report scales or the HOME Inventory. It seems, then, that an interpretation of impacts of the intervention must include a consideration of who the reporters of the outcome measures are. The most complete picture of impacts should include reports from multiple sources with varying perspectives.

Results Part II: Observation as a Predictor of Child Outcomes

For this next section of results, we will be looking at how the Teaching Task observational variables predict mother and teacher report of child functioning nearly two years after the time of the observation. As mentioned previously, these analyses are not repeated measures, but rather an examination of continuity of adaptation over time. The analyses in this section have been adjusted statistically for race of mother, age of child and sex of child, since these variables were significantly related to both the independent and dependent variables but were not of primary concern as factors in these analyses.

Relation Between Teaching Tasks and 42 Month Outcomes

The first phase of these analyses looks at the relation between the observational data collected at approximately 21 months after random assignment, and the mother and teacher reports of child behavior nearly two years later. Because the question for this analysis does not involve intervention/control differences, intervention status was covaried out of this analysis.

We conducted simple correlations between the Teaching Task observational variables and the 42 month child outcome variables to determine which variables related significantly. Then, using multiple regression, we predicted each of the 42 month child behavior scales from the observational scales that were significantly correlated to them, allowing us an indicator of how much of the 42 month variance could be accounted for by the observational variables in combination.

As you can see in Table 6, results indicate that the 42 month mother report scales can be predicted from the observational ratings. Analyses also show that 42 month teacher report scales can be predicted from the observational ratings. All relations between 21 and 42 month outcomes were moderate relations in expectable directions, such that earlier positive adaptation predicted more positive behavior later and vise-versa for negative behaviors. Thus not only is there evidence of continuity of adaptation within the mother-child relationship, but the nature of the interactions between the mother and child predicts teacher reports of child behavior nearly two years later.

With this step of the analyses, then, we established that for the observational study sample there is continuity of adaptation from the 21 month observation to the 42 month follow-up, with elements of the mother-child interaction predicting both later maternal reports of child behavior and teacher reports of child behavior.

Intervention/Control Differences on Continuity of Adaptation

In the next step of analyses, we explore whether there were significant intervention/control group differences on any of the relations between the observational ratings and the 42 month ratings. To assess this, we looked at interactions between the observational ratings and intervention/control status in predicting each of the 42 month outcome scales. We found no significant interactions predicting the teacher ratings, but we did find three significant interactions predicting maternal report. Interestingly, all the significant interactions occurred predicting the same maternal report scale, the Child Autonomy scale of the Positive Behavior Index. As you can see in Table 7, when the interactions are broken down by intervention/control status, higher Quality of Relationship at the observation significantly predicts higher maternal report of Child Autonomy for the intervention group, but not for the control group. The two other interactions had only marginally significant follow-ups when broken down by intervention/control status, indicating that higher Child Affection and lower Harsh Treatment at the observation each predict higher Child Autonomy within the New Chance group but not within the control group.

Although significant (or marginally significant), the findings are modest in magnitude. We are seeing that within the New Chance group there is continuity in the predictable direction between the observational variables and the 42 month outcome variables. This does not mean, however, that the children in the New Chance group are functioning better at 42 months -- in fact, there are no mean differences between the intervention and control groups on the Child Autonomy variables, either the maternal variable or the teacher variable. What we are seeing seems to be a difference not in child behavior, but rather in how mothers are reporting child

behavior. Mothers in the New Chance experimental group may have learned to perceive and report their children's behavior in a manner that is more in line with how trained observers viewed adaptation during the observational session, resulting in a significant relation between the observation and the maternal reports for the New Chance group but not for the control group. More support of this hypothesis is found in the fact that mothers in the New Chance group have significant agreement with the teachers on the PBI Autonomy scale, yet there is little agreement between mothers in the control group and teachers on that scale. It seems that mothers in the New Chance group are reporting on their children's behavior in a way that mirrors the interpretations of trained professionals more closely. It is possible that an unintended effect of the New Chance program was to teach mothers to perceive and report on their children's behavior differently.

Discussion

Summary of Findings

The major impact of New Chance on observational measures of affective and behavioral qualities of mother-child relationships was that mothers assigned to the New Chance experimental group, in comparison with those in the control group, showed less coercive and punitive behavior toward their children during the Teaching Task session. This finding was true as an overall difference between the groups as well as within a wide range of baseline subgroups. It seems, therefore, that New Chance did reduce harsh treatment of children by their mothers.

There were no overall differences between the New Chance experimental group and the control group on more positive observational indices of interaction such as Mother's Supportive Presence or Quality of Relationship. We did see significant differences within some of the

subgroups that may have been indices of lower risk at baseline, such as having only one child at the time of random assignment. Within these lower-risk subgroups, mothers in the experimental group were rated higher on Quality of Relationship than were control group mothers. Although this finding must be interpreted cautiously due to the lack of an overall New Chance impact, it does suggest that mothers who were at lower risk at baseline may have benefited from New Chance not only through the reduction of punitive and coercive parenting behaviors, but also through an increase in positive parenting behaviors.

One of the major goals of the comprehensive New Chance Program was to have a positive impact on the children. We did not, however, find any overall child impacts at the time of the observational session. In fact, baseline subgroup analyses suggest that for some dyads, particularly those where the mothers faced substantial interpersonal demands at baseline, children of mothers in the New Chance experimental group showed less compliance than children of mothers in the control group. Again, subgroup findings must be interpreted cautiously due to the lack of an overall impact of the New Chance program on Child's Compliance. This finding suggests that for some families the additional demands of the New Chance Program may have disrupted aspects of the mother-child relationship. Previous research has suggested that multiple maternal stressors may contribute to child behavior problems in the preschool years (Richman, Stevenson, and Graham, 1982) and in the elementary school years (Pianta, Egeland, & Sroufe, 1990). For a small group of families, it is possible that the intensive nature of the New Chance Program compounded the demands in their already stressful lives.

We found significant continuity of adaptation over time in the Observational Study sample, and within the New Chance experimental group in particular. Our analyses demonstrated that there is continuity of adaptation from the 21 month observation to the 42 month follow-up,

with elements of the mother-child interaction predicting both later maternal reports of child behavior and teacher reports of child behavior. Our analyses also established that there is some evidence of significant continuity of adaptation within the New Chance experimental group but not within the control group. Because there are no actual intervention/control differences in child behavior at 42 months, we interpret this finding to indicate that what has changed is not child behavior, but the way in which mothers in the New Chance group perceive and report on their children's behavior. This does not mean that the intervention effects on maternal report should be discounted as a methodological artifact. Changes in mothers' perceptions of their children's behavior may eventually lead to more sensitive interactions, and consequent changes in the relationships. This may be a small step toward improving mother-child relationships.

Issues for Consideration

Individual Variation in Young Mothers on Welfare

The findings of positive impacts on mother-child relationships in New Chance are impressive, if modest in magnitude. Accompanying these positive impacts, however, are some cautionary notes about intervening with young mothers on welfare. Although mothers and interviewers perceived that intervention mothers were more warm and supportive than control mothers, the observational coding did not find overall differences on more positive indices of parenting. Subgroup analyses on the observational coding revealed that lower-risk subgroups may have made some gains on positive relationship indicators through New Chance. Subgroup analyses also indicated, however, that higher-risk subgroups may have been overwhelmed by New Chance, and some disruption in mother-child relationships may have ensued. The intensive nature of the New Chance Program may have had different impacts across families depending on

the particular strengths and burdens of the families at baseline. If we wish to maximize the effectiveness of programs, we need to investigate how family characteristics determine who benefits from particular types of intervention.

Methodological Issues

One of the original goals of the Observational Study was to examine methodological issues in evaluating program impacts. Two types of information presented here address this issue: differences in information provided by different reporters, and intervention effects on maternal report.

With regard to reporter effects, maternal report, interviewer report and trained observer report not only differ from each other in the Observational Study sample, but differ in their predictive contributions. Previously presented research has demonstrated that each type of measure provides some independent information in the prediction of child outcomes, and that observational variables still add to those predictions above and beyond contributions of maternal report and the HOME Inventory (Zaslow et al., 1998), particularly in the case of prediction to teacher-reported elementary school behavior (Weinfield & Egeland, 1997).

With regard to intervention effects, New Chance may have influenced the way in which mothers report on their children's behaviors, such that intervention mothers come to report on their children in a way that is more similar to trained observers than do control mothers. These methodological issues underscore the need for multi-method assessment in evaluating program impacts. Observational methodology, in particular, is a powerful and highly predictive addition to assessment batteries.

Improving the Lives of Children in Poverty

Developmental psychologists have long known that warm, structured, supportive parent-child relationships promote the development of children into competent, effective, productive individuals. Yet, few welfare-to-work programs have attempted to address the needs of children in these stressed families. New Chance is an explicitly two-generation program that did take the needs of children into account. Despite this dual focus, we are not seeing positive changes in child behavior that can be attributed to New Chance. This may be, in part, because although New Chance was a two-generation program, the focus was mostly on the mothers. The daycare component of New Chance was underutilized and in some cases not as easily available as it should have been (i.e., on site daycare was not always available). Although there were some differences in parenting behavior attributable to New Chance, moderate changes in parenting may not be robust enough to result in changes in child behavior. In order to see greater changes in mother-child relationships or in actual child behavior, it may be necessary to intervene more directly and more intensively with dyads or with the children themselves. New Chance has shown that it is possible to bring about changes in parenting. It also seems to have altered how some mothers think about their children's behavior. The step that still remains, however, is to improve the well-being of children at risk.

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Figure 1
Timeline of New Chance Evaluation

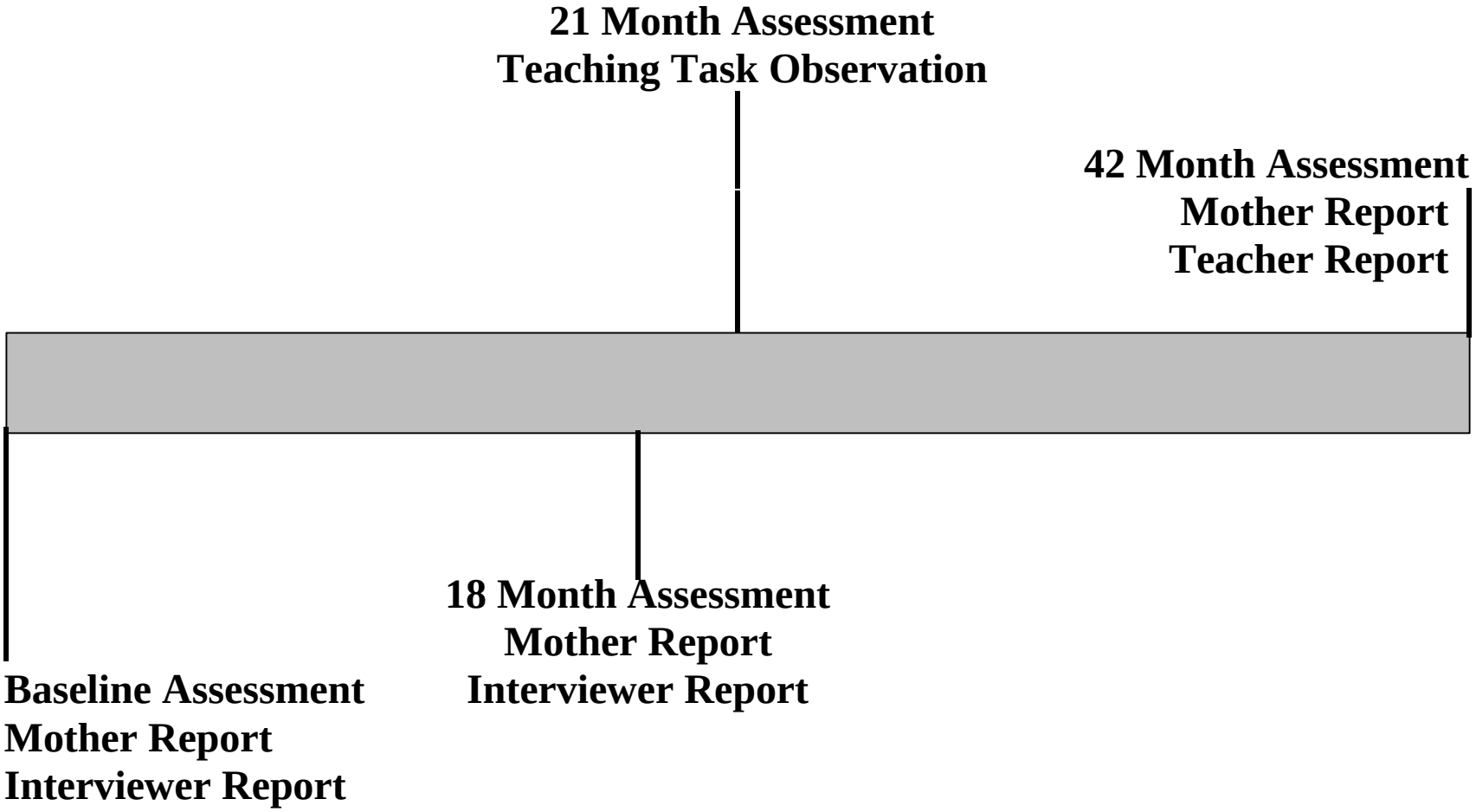

Table 1
Mother and teacher ratings of child behavior at 42-months post-random assignment

THE BEHAVIOR PROBLEMS INDEX (BPI)

Subscale	Description
Antisocial	Degree of cruelty to others
Anxious/Depressed	Degree of fear and unhappiness
Headstrong	Degree of defiance
Hyperactive	Level of activity/impulsivity
Dependent	Level of reliance on adults
Peer Conflict/Withdrawn	Level of peer difficulties

THE POSITIVE BEHAVIOR INDEX (PBI)

Subscale	Description
Compliance/Self Control	Degree of obedience
Social Competence/Sensitivity	Level of empathy and sociability
Autonomy	Degree of self-reliance

Table 2
New Chance Observational Study mother-child interaction tasks

BOOK READING
(Adapted from Snow and colleagues)

The mother was asked to read a children's book, *The Very Hungry Caterpillar,* to her child and discuss the book

TEACHING TASKS
(Adapted from J. & J. Block; Egeland and colleagues)

Blocks Task. The mother was asked to get her child to replicate a large model block by putting together smaller blocks.
Wheels Task. The mother was asked to get her child to name as many things that have wheels as he or she could.
Sorting Task. Depending on the age of the child, the mother was asked to get her child to do sorting of plastic chips on a board either by color alone, or by color, shape and size.
Maze Task. Mother was asked to get her child to draw a line through a maze on an Etch-a-sketch without crossing the lines of the maze.

Table 3
Teaching Task rating scales

Scales Evaluating Mother Behavior

MOTHER'S SUPPORTIVE PRESENCE: This scale assesses the degree to which the mother expresses positive regard and emotional support to her child. She may do this by acknowledging the child's accomplishments on tasks or on unrelated activities, encouraging the child with positive emotional expressions, or various other ways of letting the child know that he/she has her support and confidence to do well in the setting.

MOTHER'S INTRUSIVENESS: This scale assesses whether the mother lacks respect for the child as an individual and fails to understand and recognize the child's effort to gain autonomy and self awareness. There are many ways in which a mother may intrude. For example, intrusiveness can occur through harsh physical treatment, with untimely affection, or if the mother does not allow the child autonomy in the problem-solving tasks.

MOTHER'S HOSTILITY: This scale reflects the mother's expression of anger, discounting or rejecting of the child. Hostility may take the form of overt rejection the child, blaming him or her for mistakes, or the mother otherwise making explicit that she does not support the child emotionally.

MOTHER'S QUALITY OF INSTRUCTION: This scale evaluates how well the mother structures the situation so that the child knows what the task objectives are and receives hints or corrections while solving the problems that are: (a) timely to his/her current focus, (b) paced at a rate that allows comprehension and use of each hint, (c) graded in logical steps that the child can understand, and (d) stated clearly without unnecessary digressions to unrelated phenomena or aspects of the task that might only confuse the child.

MOTHER'S CONFIDENCE: This scale assesses the degree to which the mother seems to believe that she can work successfully with the child in the situation and that the child will behave appropriately (whether this is more or less task oriented depends on mother's definition of the situation as a social or achievement oriented activity).

Scales Evaluating Child Behavior

CHILD'S PERSISTENCE: This scale is a measure of the extent to which the child is actually problem-oriented in the session. The child may be either sober or playful, compliant or not compliant to the mother's directions, as long as he or she shows motivation toward completing the tasks.

CHILD'S ENTHUSIASM: This scale reflects the degree to which the child acts with vigor, confidence, and eagerness to do the tasks, taking an active interest in his/her activities and investing effort in them, as well as appreciating successes. Enthusiasm involves both a sense of agency and coordination between affect and behavior.

Table 3 (cont.)

CHILD'S NEGATIVITY: This scale assesses the degree to which the child shows anger, dislike, or hostility toward the mother. This may take the form of forceful rejection of the mother's ideas, showing angry and resistant expressions, pouting, whining, or being unreasonably demanding or critical of her.

CHILD'S COMPLIANCE: This scale measures the degree to which the child shows willingness to listen to the mother's suggestions in the setting and to comply with her requests in a reasonable manner. The compliant child is attentive to mother and structures his or her activity around the mother's directions.

CHILD'S EXPERIENCE OF THE SESSION: This scale reflects the degree to which the child's experience in the session probably resulted in feelings of success and competence on the tasks and confidence in having a good relationship with his or her mother. Both the child's behavior and the mother's behavior toward the child contribute to the child's experience of the session.

CHILD'S AFFECTION TOWARD MOTHER: This scale reflects whether the child displayed a substantial period of positive regard and sharing of happy feelings toward the mother. Behaviors considered for this scale are overtures and attempts by the child to share positive affect with the mother, such as looking at mother, making eye contact, smiling, and other affective "approach" behavior.

CHILD'S AVOIDANCE OF MOTHER: This scale reflects the child's tendencies or clear attempts to avoid interacting with the mother in the session. Signs of avoidance include the child showing a tendency, at some point in the session, to withdraw from the mother either by leaving the situation or resisting the mother's attempts to engage him or her.

Scales Evaluating Dyadic Behavior

QUALITY OF RELATIONSHIP: This scale is a dyadic, global scale focusing on affective and behavioral reciprocity of the mother-child relationship. High quality of relationship is indicated by a strong sense of relatedness and mutual engagement between mother and child, with each explicitly acknowledging and responding to the other. Any conflicts are quickly, easily, and amicably resolved with little or no escalation.

PHYSICAL AND/OR PSYCHOLOGICAL DISSOLUTION OF BOUNDARIES IN THE PARENT-CHILD RELATIONSHIP: This scale evaluates the degree to which the parent and child maintain appropriate role relationships. There are two forms of boundary dissolution, psychological and physical. The psychological boundaries between a mother and her child may dissolve when the mother begins treating the child as her contemporary (either playmate or intimate partner) rather than taking charge and setting the necessary limits. The physical boundaries between a mother and her child may dissolve when the mother controls or manipulates her child using physical intimacy and sensuality.

Table 4
Impacts of New Chance on Teaching Tasks Ratings

Observational variable	Experimental	Control	Difference	p
Ratings of the Mother				
Supportive Presence	4.16	4.00	0.16	0.300
Intrusiveness	2.88	3.01	-0.13	0.449
Hostility	2.15	2.27	-0.12	0.450
Quality of Instruction	3.84	3.81	0.03	0.802
Confidence	2.00	2.04	-0.04	0.658
Harsh Treatment	0.29	0.55	-0.26*	0.026
Ratings of the Child				
Persistence	4.46	4.50	-0.04	0.730
Enthusiasm	4.24	4.26	-0.02	0.900
Negative Affect	2.09	2.06	0.03	0.883
Compliance	4.48	4.58	-0.10	0.486
Experience of Session	4.31	4.18	0.13	0.351
Affection to Mother	4.35	4.24	0.11	0.483
Avoidance of Mother	2.20	2.30	-0.10	0.579
Ratings of the Relationship				
Quality of Relationship	4.10	3.90	0.20	0.208
Boundary Dissolution	2.39	2.25	0.14	0.378
Sample size	183	101		

Notes:

* = $p<.05$

Averages are adjusted using linear analysis of covariance procedures controlling for seven kinds of difference in characteristics before random assignment (age of child, literacy, whether or not mother had more than one child, gender of child, ethnicity, Philadelphia site and Portland site). Rounding may cause slight discrepancies in sums and differences.

Table 5a

Significant impacts of New Chance on Mother's Harsh Treatment, by subgroups formed at baseline

Subgroup at Baseline	n	Mother's Harsh Treatment Experimental	Control	Within-Subgroup Impact	p	Between-Characteristics and Subgroups Difference	p
Full Sample							
Mean		0.29	0.55	-0.26*	0.026		
Demographic Characteristics							
Child's age at observational study [a]						--	0.072
24-36 months	83	0.43	1.04	-0.61**	0.004		
37-47 months	114	0.29	0.51	-0.22	0.210		
48-63 months	87	0.19	0.13	0.05	0.778		
Gender of child						-0.31	0.177
Female	141	0.23	0.64	-0.40*	0.011		
Male	143	0.35	0.45	-0.09	0.560		
Number of children						-0.01	0.996
1	180	0.34	0.60	-0.26	0.083		
2 or more	104	0.21	0.47	-0.25	0.162		
Race/ethnicity						-0.37	0.302
Black	238	0.32	0.62	-0.30*	0.014		
White	46	0.14	0.06	0.07	0.827		
Age of mother						--	0.570
16-17 years	54	0.11	0.23	-0.12	0.631		
18-19 years	146	0.33	0.51	-0.18	0.255		
20-22 years	84	0.36	0.80	-0.43*	0.040		
Living arrangement (mother)						0.15	0.523
Living with	102	0.23	0.39	-0.16	0.389		
Not living with	175	0.33	0.64	-0.31*	0.037		
Living arrangement (partner/husband)						0.58	0.150
Living with	28	0.31	0.01	0.29	0.452		
Not living with	249	0.29	0.59	-0.29*	0.016		
Age of youngest child (years)						-0.20	0.408
Under 1	106	0.10	0.49	-0.38*	0.036		
1 or older	178	0.40	0.59	-0.18	0.212		
Number of pregnancies						0.27	0.308
1 or 2	213	0.27	0.44	-0.16	0.206		
3 or more	70	0.36	0.80	-0.43	0.057		

Table 5a (cont.)

Subgroup at Baseline	n	Mother's Harsh Treatment Experimental	Control	Within-Subgroup Impact	p	Between-Characteristics and Subgroups Difference	p
Education and Literacy							
Highest grade completed						-0.03	0.893
10th or below	182	0.29	0.56	-0.27	0.065		
11th or above	102	0.30	0.54	-0.24	0.202		
Interval since last attended regular high school						-0.13	0.602
2 years or less	130	0.28	0.61	-0.33	0.055		
3 years or more	147	0.31	0.52	-0.20	0.196		
TABE reading test score (grade equivalent) [b]						--*	0.015
7th grade or below	130	0.43	0.62	-0.19	0.271		
8th or 9th grade	78	0.17	0.96	-0.79**	0.000		
10th grade or above	76	0.15	0.10	0.04	0.829		
Employment and AFDC History							
Ever employed						-0.29	0.295
Yes	221	0.25	0.58	-0.32*	0.014		
No	63	0.44	0.47	-0.03	0.901		
Family received AFDC when sample member was growing up						--	0.234
Never	82	0.18	0.70	-0.52*	0.021		
Sometimes	142	0.32	0.51	-0.19	0.228		
Always	59	0.41	0.38	0.03	0.896		
Psychosocial Characteristics							
CES-D (depression) score [c]						--	0.850
0-15 (not at risk)	137	0.30	0.59	-0.29	0.083		
16-23 (at some risk)	76	0.25	0.56	-0.31	0.164		
24-60 (at high risk)	71	0.32	0.47	-0.14	0.526		
Self-Esteem score [d]						0.18	0.496
Below mean	74	0.23	0.36	-0.12	0.581		
At or above mean (35)	210	0.32	0.62	-0.30*	0.023		
Number of sources of emotional support						-0.05	0.839
0-2	127	0.28	0.56	-0.28	0.091		
3 or more	157	0.31	0.55	-0.23	0.134		
Level of satisfaction with emotional support [e]						0.23	0.317
Less than very satisfied	135	0.26	0.41	-0.14	0.378		
Very satisfied	149	0.33	0.70	-0.37*	0.019		

Table 5a (cont.)

Subgroup at Baseline	n	**Mother's Harsh Treatment** Experimental	Control	Within-Subgroup Impact	p	Between-Characteristics and Subgroups Difference	p
Locus of Control score [f]						-0.02	0.936
Below mean	111	0.39	0.67	-0.27	0.135		
At or above mean (22)	173	0.23	0.48	-0.25	0.088		
Sample size		184	106				

Table 5b
Significant impacts of New Chance on Child's Compliance, by subgroups formed at baseline

Subgroup at Baseline	n	**Child's Compliance** Experimental	Control	Within-Subgroup Impact	p	Between-Characteristics and Subgroups Difference	p
Full Sample							
Mean		4.48	4.58	-0.10	0.486		
Demographic Characteristics							
Child's age at observational study [a]						--	0.187
24-36 months	83	3.84	3.90	-0.06	0.840		
37-47 months	114	4.57	4.44	0.13	0.594		
48-63 months	87	4.94	5.46	-0.52	0.053		
Number of children						0.85**	0.005
1	180	4.51	4.28	0.23	0.216		
2 or more	104	4.39	5.01	-0.62**	0.009		
Living arrangement (partner/husband)						-1.41**	0.008
Living with	28	3.82	5.19	-1.37**	0.007		
Not living with	249	4.57	4.53	0.04	0.809		
Psychosocial Characteristics							
CES-D (depression) score [c]						--	0.265
0-15 (not at risk)	137	4.48	4.38	0.10	0.657		
16-23 (at some risk)	76	4.57	5.05	-0.48	0.092		
24-60 (at high risk)	71	4.38	4.45	-0.07	0.816		
Sample size		184	106				

Table 5c

Significant impacts of New Chance on Quality of Relationship, by subgroups formed at baseline

Subgroup at Baseline	n	Quality of Relationship Experimental	Control	Within-Subgroup Impact	p	Between-Characteristics and Subgroups Difference	p
Full Sample							
Mean		4.10	3.90	0.20	0.208		
Demographic Characteristics							
Child's age at observational study [a]						--	0.416
24-36 months	83	3.48	3.35	0.13	0.653		
37-47 months	114	4.22	3.81	0.41	0.098		
48-63 months	87	4.49	4.58	-0.09	0.764		
Number of children						0.43	0.186
1	180	4.11	3.74	0.37	0.070		
2 or more	104	4.06	4.12	-0.06	0.812		
Education and Literacy							
TABE reading test score (grade equivalent) [b]						--	0.119
7th grade or below	130	3.90	4.04	-0.14	0.556		
8th or 9th grade	78	4.35	3.75	0.60*	0.047		
10th grade or above	76	4.22	3.82	0.40	0.178		
Sample size		184	106				

Notes:

**= $p<.01$, * = $p<.05$, = $p<.10$

Averages are adjusted using linear analysis of covariance procedures controlling for up to seven kinds of difference in characteristics before random assignment (age of child, maternal literacy, whether mother had more than one child, gender of child, race/ethnicity, Philadelphia site, and Portland site).

[a] When a sample member had more than one child, her response refers to the randomly selected focal child.

[b] The test used to measure reading ability was the reading part of the Tests of Adult Basic Education (TABE). Most sites administered the survey form of the test, but some administered the full reading test.

[c] The Center for Epidemiological Studies Depression (CES-D) Scale is a widely used measure of depression; scores can range from zero to 60.

[d] The measure of self-esteem used was the Rosenberg Self-Esteem Scale, a 10-item scale that assesses a person's global sense of self-worth. Scores can range from 10 to 50; 30 is considered the neutral midpoint.

[e] Enrollees were asked about their degree of satisfaction with the emotional support ("people who listen to you, reassure you, and show you they care") they received. Levels range from 1 (very dissatisfied) to 5 (very satisfied).

[f] The Locus of Control Scale is a 6-item adaptation of the longer scale originally developed by Julien Rotter (1966). Scores can range from 6 to 30; 18 is considered the neutral midpoint.

Table 6
Summary of regressions predicting of 42 month child behaviors from 21 month mother-child interaction scales

Reporter/Measure/ Dependent Variable	Multiple R	Predictor (Direction)
MOTHER REPORT:		
Behavior Problems Index		
Antisocial	.18*	Harsh Treatment (+), Affection (-)
Anxious	.17*	Confidence (-), Negativity (+)
Headstrong	.20**	Affection (-), Negativity (+)
Hyperactive	.24**	Confidence (-), Harsh Treatment (+), Affection (-), Negativity (+)
Positive Behavior Index		
Social Competence	.23*	Confidence (+), Harsh Treatment (-), Affection (+), Quality of Relationship (+)
Autonomy	.16*	Confidence (+), Negativity (-)
TEACHER REPORT:		
Behavior Problems Index		
Dependency	.28**	Confidence (-), Negativity (+)
Peer Conflict	.23*	Affection (-), Negativity (+), Quality of Relationship (-)
Positive Behavior Index		
Compliance	.29**	Confidence (+), Affection (+), Quality of Relationship (+)
Social Competence	.24*	Confidence (+), Affection (+), Quality of Relationship (+)
Autonomy	.27*	Confidence (+), Harsh Treatment (-), Affection (+), Quality of Relationship (+)

Notes:
* = $p<.05$, ** = $p<.01$
(+) = relation between IV and DV is positive
(-) = relation between IV and DV is negative

Table 7

Follow-up analyses for 2-way interactions: Correlations between 42 month mother report of child behavior from 21 month mother-child interaction, split by group

Independent Variable/ Dependent Variable	Group: Intervention (n=157)	Group: Control (n=88)
Harsh Treatment/ Autonomy	-.15	.10
Affection/ Autonomy	.15	-.16
Quality of Relationship/ Autonomy	.19*	-.12

Notes:
= $p<.10$, * = $p<.05$