

ARTICLE

Parenting Training for Women in Residential Substance Abuse Treatment

Results of a Demonstration Project

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Abstract—This paper presents findings on the impact of implementing a parenting component in two urban residential treatment programs in Massachusetts for pregnant and parenting chemically-dependent women. The parenting component consisted of multiple services for both women and their infants while they were in residential treatment as well as aftercare services after discharge from treatment. Findings presented focus on: (a) the characteristics of the 170 pregnant and parenting women who participated in the parenting component during its 48 months of implementation; (b) changes in the parenting skills and self-esteem of women who completed parenting training; (c) the quality of mother-child interaction; and (d) the participants' perceptions about the impact of the parenting training. Women in both programs made dramatic improvements in self-esteem and experienced significant gains in parenting knowledge and attitudes. The participants were also overwhelmingly positive about the impact of the parenting training on their lives. Study findings underline the importance of parenting services for pregnant and parenting women in residential substance abuse treatment. © 1997 Elsevier Science Inc.

Keywords—parenting training; pregnant women; drug treatment; self-esteem; residential treatment.

INTRODUCTION

ALCOHOLISM AND DRUG ABUSE continue to have a major impact on families in the United States, particularly women and children. Significant drug and alcohol use among pregnant women and women of child-bearing age has been documented in many studies. Prevalence figures for substance use in pregnant women range from 11% (California; National) to 14.8% (Florida), up to

24% to 27% (Boston & Philadelphia) with a high of 50% in Washington, D.C. (Chasnoff, 1988; Chasnoff, et al., 1989; Philadelphia Perinatal Society and Philadelphia Department of Health, 1989; U.S. House of Representatives, 1989; Vega et al. 1993; Waxman, 1989; Zuckerman et al. 1989).

Chemically-dependent pregnant and parenting women may be particularly prone to experiencing difficulties in parenting. A combination of factors may contribute to this: emotional instability; lack of social and economic resources, including social supports; having a high-risk infant who may be irritable, unresponsive, and have serious medical problems; and a childhood history that includes physical and sexual abuse and few positive role models for parenting. The link between substance abuse and inadequate parenting, including child abuse and neglect, was a major factor in the development of the

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parenting program described in this article. Some studies have found from 50% to 70% (Hershowitz & Seck, 1990; Stevens & Arbiter, 1995) or higher of reported cases of child abuse and neglect involve alcohol and/or other drugs. A study by Jones and Ackatz (1991), found that in states that collected data on substance abuse and child abuse, 40% of substantiated child abuse cases involved a substance abusing perpetrator (Van Bremen & Chasnoff, 1994). A study by Williams-Petersen and colleagues on both drug using and nonusing mothers and the potential for child abuse found that drug using women scored significantly higher on measures of child abuse potential; more than 50% scored in the range of clinical criterion for extreme risk (Williams-Petersen et al. 1994).

Many experts believe that increases in substance abuse among women are to blame for the growing numbers of children in foster care in the United States (Harris, 1991). Parental addiction undermines parent's traditional role of protecting their children, making children more likely to be targeted as victims of abuse (Blume, 1994). All too frequently the substance-abusing mother has been a victim of violence and abuse herself. Trauma has, in fact, been found to be predictive of the development of alcohol, drug, and mental health problems in women. Studies of women in substance abuse treatment have found rates of sexual trauma and incest ranging from 12% to 85% (Beckman, 1994). Women whose childhood histories include sexual assault are significantly more likely than women without these histories to report substance use and abuse as well as depression, anxiety, and other mental health problems (Finkelstein, 1993; Miller, Downs, & Testa, 1993; Wilsnack et al., 1994).

In addition, intergenerational factors play a part in both inadequate parenting role models and the use and abuse of alcohol, tobacco, and other drugs. Substance abusing women tend to report more positive family histories of drinking problems than men (Amaro, 1994; Blume, 1990; Gomberg, 1993; Gomberg, Nelson & Hatchett, 1991; Woodhouse, 1992). Women raised in homes in which one parent was alcoholic are more likely to report depression than men raised in similar circumstances (Gomberg, 1993).

All of the above experiences impact on how women feel about themselves, that is, their self-esteem (Stevens & Arbiter, 1995). The characteristic mentioned most frequently by researchers studying substance use and abuse in girls and women is low self-esteem. It is clear that low self-esteem can be a significant factor in women's substance abuse, as either or both antecedent or consequence (Bersak, 1990; Jarvis, 1992; Marr & Fairchild, 1993; Nespor, 1990). Many studies report women's self-esteem as significantly lower than men's (Beckman, 1994; Bersak, 1990; Degen et al., 1993; Hunt & Seeman, 1990; Kingree, 1995; Lundy et al., 1995; Oyemade et al., 1994, Silvia, Sorell, & Busch-Rossnagel, 1988).

A 1990 study by Rhodes and Jason found lower levels of drug use among urban high school students correlated

significantly with higher levels of self-esteem (Rhodes & Jason, 1990). A study by Colten found that heroin-addicted females expressed doubts about their adequacy as mothers more than a sample of non-substance abusing women (Colten, 1982). In addition, self-esteem has been found to significantly affect emotional distress and high-risk behaviors (Nymathi, 1991). Several studies have shown improvements in self-esteem after treatment. For example, Bartholomew et al. found that women who participated frequently in women's groups showed greater increases in self-esteem (Bartholomew, Rowan-Szal, Chatham, & Simpson, 1994).

Maternal self-esteem has also been found to effect the quality of maternal-child interaction, with low self-esteem contributing to child maltreatment (Christensen et al., 1994).

Research suggests that developing effective parenting skills not only benefits the child, but may also improve the mother's self-esteem and sense of competence (Bauman & Dougherty, 1983; Egeland & Erickson, 1990; Leif, 1985; Zuckerman & Bersnahan, 1991). In a previous study (Nanson, Habbick, Casey, & Zaleske, 1981), parenting training was found to be the most effective component of an intervention to help children with Fetal Alcohol Syndrome.

Bavelok (1984), has identified four parenting domains repeatedly shown in the literature to be associated with parental abuse or neglect: (a) inappropriate expectations; (b) lack of empathy towards children's needs; (c) belief in corporal punishment; and (d) parent-child role reversal. Inappropriate expectations refers to not understanding the sequential stages of child development and expecting the child to perform tasks that he/she is not developmentally able to accomplish. For example, requiring a very young child to help with housework and cooking (Martin, 1976). Lack of empathy towards children's needs refers to a parent's inability to understand his or her child's feelings and state of mind. Parents in this category exhibit little awareness of their child's needs, do not respond appropriately to their child's needs, and may ignore a child's basic needs.

Belief in the effectiveness of corporal punishment is another factor commonly associated with abusive parenting. Parents adhering to this belief feel that children must be shown who is in charge so that they will not become unmanageable (Steele, 1975). These parents also feel entitled to use physical punishment as a form of discipline. Finally, the reversal of parent-child roles is also associated with abusive and neglectful parenting. A parent in this category acts like a needy child and looks to his/her child for emotional and physical comfort (Steele, 1975).

Bavelok (1984) has shown that training in appropriate behavior along these parenting domains results in improved parenting. The study reviewed in this article examines the efficacy of implementing a parenting component in two residential treatment programs for pregnant and parenting chemically-dependent women. The under-

lying rationale for implementing the parenting component was to provide a series of interventions that would result in improved parenting skills and self-esteem for chemically-dependent women as well as improved birth outcomes for the infants born to these women.

THE PARENTING COMPONENT

The parenting program described in this article was one component of a 5-year demonstration project, the Coalition on Addiction, Pregnancy and Parenting (CAPP), which was initially funded by the Center for Substance Abuse Prevention (CSAP) in 1989. The parenting component consisted of specialized individual and group services for both women and their children at two established long-term residential substance abuse treatment programs for women in the Boston area. After they left treatment, pregnant women enrolled in the parenting component also received aftercare services that included counseling, home visits, and case management services. The evaluation results presented in this article, however, focus on the parenting services provided to the pregnant and parenting women while they were in treatment.

Services to the Women in Treatment

While the women were in residential treatment they received individual counseling focused on particular parenting concerns, an individual child, or the parent-child dyad. They also participated in three groups led by CAPP parenting specialists: (a) a parenting skills group; (b) a child development group; and (c) a mother's support group.

The parenting skills group was the most structured of the three groups, and it was based on a standard curriculum, *The Nurturing Program for Parents of Children Birth to Five Years Old*, developed by Stephen J. Bavolek, PhD. The curriculum was designed for two and one-half hour weekly sessions provided over 23 weeks. It emphasized specific parenting skills and attitudes and focused on the four domains of parenting behavior associated with neglectful or abusive parenting behavior described above (inappropriate expectations; lack of empathy; corporal punishment; and role reversal). It also imparted information about child development and parenting issues. Skill development focused on learning behavior management, communication, and developmentally appropriate play activities. In addition, group sessions focused on attitudinal change and participants' values and beliefs, their origins and effectiveness.

The Nurturing Program was modified and adapted to be more responsive to the residential treatment programs and the abilities and cultural backgrounds of the clients. In addition, the teaching method adopted used more experiential techniques, such as role playing and participatory exercises. Considerable effort, however, was made to maintain the focus on the four parenting domains and

to make consistent adaptations of the parenting skill training at both residential sites.

The other two groups provided to pregnant and parenting women as part of the Parenting Component were less structured. A Child Development Group provided specific information regarding children's developmental stages, skills, and abilities from birth to three years. In the Mother's Support Group, women shared their day-to-day experiences in parenting and supported each other in coping with parenting problems.

The Residential Programs

Both of the participating residential programs were established and fully operational before the implementation of the parenting program. Other similarities between the programs included: both were long-term and designed to provide treatment for approximately one year; both were based on self-help philosophies and were administered and staffed almost exclusively by women. In addition, both programs were staffed by a considerable number of recovering women.

Program A was located in the inner city of Boston and Program B was located in a blue-collar/working class city close to Boston. Other differences between the two residential programs included differences in admission criteria, treatment philosophy, and timing of client participation in the parenting program.

METHOD

The objective of this study was to determine whether the parenting component had a positive impact on participants. It assessed whether the demonstration project met its goals and objectives for pregnant and parenting women by addressing the following questions: What were the characteristics of the participants? Did women who completed the Nurturing Program exhibit improvement in parenting knowledge and attitudes? Did the self-esteem of those who completed the Nurturing Program improve? Did the quality of interaction between mothers and infants improve? Was improvement in parenting skills related to age, race, education, and number of previous times in substance abuse treatment? How did the women who completed the Nurturing Program assess its impact?

Research Design/Instruments

The evaluation of the parenting component employed a quasi-experimental design using repeated measures. Findings on parenting skills and self-esteem were based on measurements taken at three points in time: (a) at admission to the Nurturing Program; (b) 3 months after admission to the Nurturing Program or at discharge if it occurred before completing 3 months of the Nurturing Program; and (c) at completion of the parenting skill

training or discharge from treatment if it occurred before training completion. Quality of mother-child interaction was based on measurements taken when the infant was 6 weeks, 6 months, and 12 months old.

Five instruments were used: three standardized instruments and two that were developed for this evaluation. These were: the Intake Interview, the Adult-Adolescent Parenting Inventory (AAPI), the Hudson Self-Esteem Index (ISE), the Nursing Child Assessment Satellite Training Feeding Scale, and the Participant Evaluation of the Parenting Program.

The Intake Interview was designed by CAPP evaluation staff to collect basic sociodemographic data and information on history of sexual abuse, physical abuse, substance abuse, and prior substance abuse treatment, and information about parental substance abuse. The intake interview was given only once at admission to the treatment program. The Adult-Adolescent Parenting Inventory (AAPI) is a pre-post measure for the Nurturing Program (the standardized parenting skills program employed in this service demonstration). The AAPI was selected, in part, because sample considerations employed in standardizing the AAPI included: sex, age, ethnic group, geographical region and urban and rural settings, and in part, because the AAPI had been selected for use in similar demonstration projects.

The Hudson Index of Self-Esteem (ISE) was selected because it is particularly suited for use in the treatment setting and has been used and researched extensively. The NCAST Feeding Scale (Nursing Child Assessment Satellite Training Feeding Scale) is a widely used standardized measure that assesses the quality of mother-child interaction. This measure was administered when the infants were 6 weeks, 6 months, and 12 months old. The CAPP staff who administered the test underwent certification in the use of the instrument.¹

The Participant Evaluation of the Parenting Training, which was designed by CAPP evaluation staff, asks participants to rate how helpful the Nurturing Program was for them in terms of the 10 areas emphasized in the training. In addition, it asks women to describe specific changes in parenting they have made as a result of participating in the Nurturing Program.

Analyses

The analyses of the AAPI and ISE focus on changes among women who either completed the Nurturing Program or the majority of it. Because changes in the same individuals over time were being studied, the paired *t* test was utilized for analyses of the AAPI and ISE. However, if outliers were present, the Wilcoxon signed rank test

was used if the distribution of differences in outcomes was symmetric; otherwise the sign test was used. (Outliers occurred in only 3 of the 14 changes examined.) Change was measured using gain scores (differences in outcome values) unadjusted for baseline (Time 1) values because changes due to regression to the mean were negligible. Two-sided tests were used for calculating *p* values.

The analyses on the ISE examines changes in the participants' mean score between the first, second, and third assessments, which are referred to as Time 1, Time 2, and Time 3 respectively. These analyses focus on changes at three points: (a) between Time 1 and Time 2; (b) between Time 2 and Time 3; and (c) between Time 1 and Time 3. Analyses of the AAPI focus on change between Time 1 and Time 3. Because a negative change between Time 1 and Time 2 is an expected outcome on the AAPI, these analyses report but do not assess the statistical significance of the second assessment, Time 2.

Due to small sample size, in conjunction with sample bias due to high attrition, only descriptive results of the NCAST Feeding Scale are presented. These are based on all women who completed the NCAST Feeding Scale, regardless of whether they had completed the Nurturing Program.

The relationship between improvement on each of the four AAPI parenting domains and the following four client characteristics was studied: age at admission, race, number of years of education, and number of times the woman had previously been in substance abuse treatment. Race was coded as a dichotomous variable for these analyses, that is, White and non-White. Because of skewness in the data on age of admission, years of education, and prior substance abuse treatment, Spearman rho was used to test the associations between improvement in parenting and these characteristics. *T* tests were used to examine the relationship between race and improvement in parenting skills. Additionally, the relationship between improvements in self-esteem and parenting skills was examined using Spearman rho because the scatterplots of the data revealed a few outliers.

Analytical Considerations

Although enrollment in the parenting skill training was to occur as close as possible after admission to residential treatment, initially one program did not allow clients to participate in the parenting training until 3 to 6 months after admission. As a result, there is a substantial difference in the timing of the "change" measurements given at the two residential programs. For example, at Program A, the client's first set of measurements were generally taken within the first month of treatment, the second set approximately 4 months after admission, and the last set approximately 9 months after admission. In contrast, at Program B, the first set of measurements were taken about 4 months after admission to treatment, the second set nearly 8 months after admission, and the last set

¹The test-retest reliability reported for all three standardized measures used in this study indicates these are stable measures with .76 for the AAPI, .90 for the ISE, and .83 for the NCAST Feeding Scale.

nearly 1 year after admission. Because these measurement differences are substantial and are also related to differences in length of time in treatment and, hence, different stages of recovery, the changes in parenting skills, self-esteem, and mother-child interaction are considered separately for each residential program.

The size of the samples used in the findings on women who completed the Nurturing Program are considerably smaller than the sample of 170 women who were admitted to the parenting training because: (a) the use of paired tests results in the inclusion of only women who took the first and third measures; (b) some women had not participated in the parenting training long enough to have completed the final follow-up measure; and (c) some women dropped out of treatment before taking the third measure. As a result, while for one program there were intake data on 79 pregnant women, there were only 26 women who completed the final follow-up measure for the AAPI, and 24 women who took the final follow-up measure for the Self-Esteem Index. At the other program, there were intake data on 91 pregnant and parenting women, with complete follow-up data on 40 women for the AAPI and 39 women for the Self-Esteem Index.

Analyses were conducted to delineate factors associated with sample attrition. The first analysis considered what factors distinguished women who did not participate in the Nurturing Program from those who did participate. For these comparisons, nonparticipants were defined as women who dropped out of treatment after attending two or fewer sessions of the parenting training. The second set of analyses compared women who dropped out of the parenting training because they left treatment after either the first or second assessment to those women who completed the training. The following client characteristics were first examined graphically to identify a set of factors that would potentially be associated with differences between participants and nonparticipants and/or associated with differences in length of participation: race/ethnicity; marital status; age; education; number of children; employment and arrest histories; history of use of alcohol, marijuana, cocaine, crack, and heroin; daily use of same substances; total number of substances used; self-esteem and scores on the AAPI. A series of odds ratio analyses were then conducted on the factors that this initial analysis indicated might be associated with participant drop-out.²

Although the analyses revealed some differences between completers and drop-outs, the analyses also established that low self-esteem and severity of substance abuse problems as measured by the number of substances used, were not associated with participant drop-

out. In fact, at both programs women with histories of abusing four or more drugs and histories of heroin use were more apt to participate (meaning not drop out within two sessions) than were those without similar histories. While there were a few other differences between participants and nonparticipants and completers and drop-outs on other variables examined including substance abuse, the differences were inconsistent across residential programs and time periods studied. The overall findings, however, indicate it is unlikely that the changes reported for those who completed the parenting skill training are due to drop-out by women with more severe substance abuse problems and lower self-esteem.

RESULTS

The parenting skill training began in March 1990 at the two residential programs and enrollment ended on August 31, 1993. During this time a total of 170 women were admitted to the parenting component. Seventy nine women were from Program A and 91 women were from Program B. Because Program A only admitted pregnant women, all of the clients at Program A were pregnant at the time of admission. In contrast, 36 of the 91 women admitted to the parenting component from Program B were pregnant at the time of admission and the other 55 were parenting women. The majority of pregnant women from both programs also had other children. At the time of admission, the 170 women had collectively a total of 408 children ranging in age from one month to 24 years.

Participants' Characteristics and Histories

Sociodemographic Characteristics. The mean age of the women was 27.3 years and the majority (79%) were women of color with 122 Blacks, 6 Hispanics, and 3 Native Americans. They had experienced considerable socioeconomic disadvantages, including being single (74%), lack of a high school education (60%), income well below the federal poverty level (76%), and a relatively high rate of homelessness (27%). Sixty-nine percent reported having been arrested at least once. Only 9% had held either a full-time or part-time job just prior to admission.

Pattern of Substance Abuse. The overwhelming majority (96%) of the women were poly-substance abusers, meaning their pattern of substance abuse involved more than one substance and/or more than alcohol. Data on drug and alcohol use was analyzed according to lifetime (ever) and current (past month) use. Nearly two thirds (65%) of the women had used between three to six substances in their lifetime. They were most likely to have used alcohol (92%), cocaine (91%), marijuana (84%), crack (80%), PCP/other hallucinogens (41%), heroin (32%), amphetamines/other stimulants (24%), tranquilizers (24%), barbiturates/sedatives (16%), and other opiates (16%) at least once in their lifetime.

²Limited sample size precluded logistic regression. For a more complete discussion of the analyses of differences between completers and drop-outs see Camp & Finkelstein, (1995).

The majority (75%) of the women had stopped abusing substances at least 1 week before beginning residential treatment. This finding is not surprising given that residential programs prefer and generally require women to undergo detoxification treatment prior to admission. The findings show, however, that two thirds (66%) of the women had abused at least one substance in the month prior to their entrance into the program. Over two fifths of the respondents had consumed cocaine (45%), crack (43%), and alcohol (43%) the month prior to admission, while 19% had used marijuana and 77% reported heroin use. Moreover, among the women who reported substance abuse in the month prior to admission, over two thirds (69%) reported polysubstance abuse during that month, with 34% having used two substances and 36% having abused three or more substances in the month prior to admission.

Substance Abuse Treatment History. Ninety-six percent of the women reported that they had undergone detoxification at least once prior to their current admission to residential treatment. Many of the women had previously received treatment at short-term rehabilitative programs (31%), residential facilities (21%), or outpatient clinics (11%). Four women had participated in a methadone program.

Perinatal Substance Abuse. Over two thirds (68%) of the 170 women enrolled in the parenting program were pregnant at admission. The majority (87%) of pregnant women entered residential treatment after their first trimester with slightly over half (51%) of the pregnant women entering during their third trimester. The women also abused substances well into their pregnancies. Nearly two fifths (39%) of the women were using sub-

stances until their second trimester and another two fifths (40%) used until their third trimester.

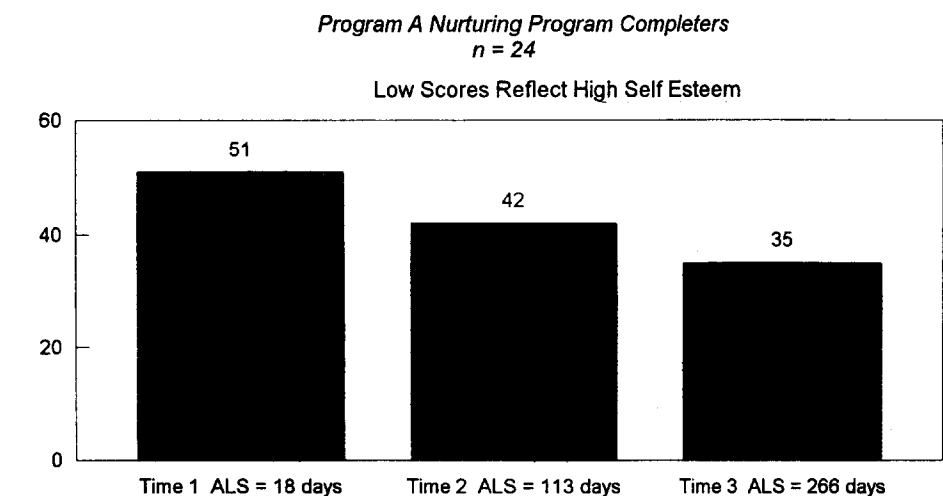
Childhood History. The women had difficult childhoods. Few grew up in a two-parent family and nearly three fourths (72%) grew up in homes where either a parent or other responsible adult abused alcohol and/or other drugs. Moreover, two fifths (40%) reported having suffered from sexual abuse and over one third (37%) reported having suffered physical abuse during their own childhoods.

Site Differences. *T* tests and chi-squares revealed eight significant differences between the clients in Program A and Program B. Clients at Program B were more likely to be women of color (89% vs. 70%, $p = .006$); to be older (mean age = 28.3 years vs. 26.1 years, $p = .0003$); to have children living with them before admission (33% vs. 18%, $p = .048$); to have undergone detoxification prior to admission (93% vs. 81%, $p = .01$); to report being sexually abused as a child (49% vs. 29%, $p = .01$); to report being physically abused as a child (45% vs. 25%, $p = .01$); and to report that a parent or caretaker abused alcohol or other drugs during their childhood (78% vs. 64%, $p = .05$). Clients at Program A, however, were less likely to have lived with their parents just prior to admission to substance abuse treatment (12% vs. 34%, $p = .001$).

OUTCOME FINDINGS

Hudson Index of Self-Esteem (ISE)

Scores on this measure range from 0 to 100. A low score reflects high self-esteem and a high score indicates poor



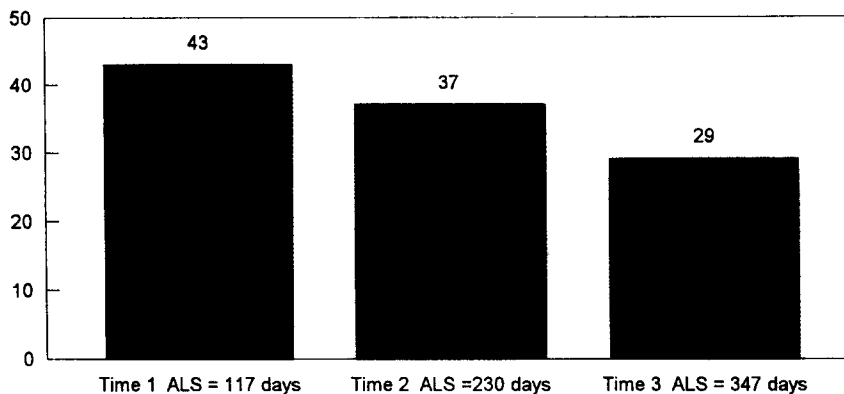
a. Test statistics are: Between Time 1 and Time 3, $t=5.60$, $p<.001$; Between Time 1 and Time 2, $t= 2.70$, $p<.05$; Between Time 2 and 3, $t=3.28$, $p<.01$.

b. ALS = Average length of stay (in days) in program at Time 1, 2, 3.

FIGURE 1. Average Hudson self-esteem scores.

Program B Nurturing Program Completers
n = 39

Low Scores Reflect High Self-Esteem



a. Test statistics are: Between Time 1 and Time 3, $t = 5.98, p < .001$; Between Time 1 and Time 2, $t = 3.41, p < .01$; Between Time 2 and Time 3, $S = 9.5, p < .01$.

b. ALS = Average length of stay (in days) in program at Time 1, 2, 3

FIGURE 2. Average Hudson self-esteem scores.

self-esteem. Individuals with scores below 30 generally have no clinically significant problems with self-esteem. Those with scores above 30 usually have clinically significant self-esteem problems (Abell et al., 1984).

Program A. As shown in Figure 1, at Time 1, which was on average 18.2 days after admission, the mean (\bar{x}) self-esteem score for Nurturing Program completers was 51 indicating that the women were experiencing considerable self-esteem problems. At Time 2, which was on average nearly 4 months after admission, they had undergone significant improvement in self-esteem, but were still experiencing low self-esteem ($\bar{x} = 42.3$). By Time 3, which was on average 9 months after admission, the participants had experienced additional significant improvement in self-esteem ($\bar{x} = 35.2$). This last increase in positive self-esteem demonstrates a positive pattern in improvement amounting to a 31% change in self-esteem between Time 1 and Time 3, and places the women only 5 points above the clinical cutoff score of 30 at Time 3 as opposed to 21 points above at Time 1.

Program B. As shown in Figure 2, at Time 1, which was on average 3.9 months after admission, the mean self-esteem score was 43.2, indicating that the women were experiencing some self-esteem problems. There was significant improvement in self-esteem between Time 1 and Time 2, with the latter occurring on the average 7.7 months after admission. Approximately 4 months later at Time 3, there was an additional significant increase in self-esteem among women who completed the parenting training. The overall decrease from 43.2 to 29.3 between Time 1 and Time 3 represents a significant increase amounting to a 32% improvement in the women's self-esteem over ap-

proximately a seven month period and places the women within the range of healthy self-esteem by Time 3.

Adult-Adolescent Parenting Inventory

The standardized scores for each of the four domains measured by the AAPI range from 1-10. Scores of 1 to 2 indicate "a significant deficiency in appropriate parenting behavior" and individuals with such low scores "should be considered high risk for abusive parent-child interactions" (Bavolek, 1984). Scores of 3 and 4 reflect deficiencies in appropriate parenting behavior but also indicate some individual strengths. Scores of 5 and 6 are average scores and reflect the norm for the population. Scores of 7 to 10 are above average with scores of 9 and 10 being "extremely positive scores and indicate very appropriate and nurturing parenting behavior" (Bavolek, 1984). Abusive parents may score low on any one or a combination of the four domains measured by the AAPI.

Program A. As shown in Table 1, at Program A there was significant improvement between Time 1 and Time 3 on all four parenting domains measured: Inappropriate Expectations (6.1 to 7.3); Lack of Empathy (4.9 to 6.4); Belief in Corporal Punishment (7.0 to 8.2); and Role Reversal (5.9 to 7.7). Moreover, by Time 3, the women exhibited a change from average to above average on three of these domains (Inappropriate Expectations, Corporal Punishment and Role Reversal).

Although there was positive change between Time 1 and Time 3 on all four parenting domains, there was a notable negative change in Inappropriate Expectations between Time 1 and Time 2. The decrease in the mean scores on the parenting measure between the first and

TABLE 1
Adult Adolescent Parenting Inventory (Mean Standardized Scores for Program A Nurturing Program Completers $n = 26$)

Measures	Time 1	Time 2	Time 3	Test Statistic Between Time 1 and Time 3
Inappropriate Expectations	6.1	5.0	7.3	$t = 3.73^{**}$
Lack of Empathy	4.9	5.5	6.4	$t = 4.92^{***}$
Corporal Punishment	7.0	6.9	8.2	$t = 4.30^{***}$
Role Reversal	5.9	6.4	7.7	$t = 5.43^{***}$
	ALS = 29	ALS = 118	ALS = 265	

ALS = Average length of stay (in days) in program at Time 1,2,3.

$^{**}p < .01$; $^{***}p < .001$.

$t = t$ value.

second assessments is not as surprising as it may initially appear. Bavelok confirmed that a decrease between the first and second assessment is not uncommon among those using the AAPI at similar intervals as used in this study. There are several possible explanations for these decreases between Time 1 and Time 2, including the learning curve for acquiring new concepts, the process of re-evaluating beliefs during treatment, and the impact of treatment on levels of awareness. It is not uncommon for test measurements to show decreases before improvement during the early stages of learning, as individuals often struggle with new concepts that challenge previously held beliefs and attitudes. Similarly, substance abuse treatment is a period of intense self-evaluation and changes in self-awareness, and the decreases in the mean parenting scores might reflect these recovery processes. For example, at the first assessment, a woman might not have been aware that she had inappropriate expectations of her children, but at the second assessment she might have been more aware of her actual behavior, and, therefore, reported more accurately. Because it was expected that the outcome values would drop at Time 2, statistical comparisons were not made for differences between Time 1 and Time 2 and between Time 2 and Time 3.

Program B. As shown in Table 2, at Program B there was significant improvement on two parenting domains between Time 1 and Time 3, with an increase from 3.6 to 5.0 on Lack of Empathy and an increase from 5.5 to 6.2 on Role Reversal. On three of the domains (Inappropriate Expectations, Belief in Corporal Punishment and Role Reversal) there was a negative change between Time 1 and Time 2. These decreases, however, were counterbalanced by considerable improvements between Time 2 and Time 3.

The improvement exhibited on the empathy domain at Program B was of considerable importance as the mean score of 3.6 at the first assessment indicates potentially serious deficiencies in parenting skills on this domain. The steady and statistically significant improvement between the first and third assessment resulted in average empathic parenting skills for Program B's participants by the third assessment.

NCAST Feeding Scale

The highest total score for the feeding scale is 76. In assessing evaluation outcomes, Barnard (1994), recommends using a 10th percentile cutoff score based on the

TABLE 2
Adult Adolescent Parenting Inventory (Mean Standardized Scores for Program B Nurturing Program Completers $n = 40$)

Measures	Time 1	Time 2	Time 3	Test Statistic Between Time 1 and Time 3
Inappropriate Expectations	6.5	4.6	6.6	$t = 0.43$
Lack of Empathy	3.6	4.3	5.0	$t = 5.97^{***}$
Corporal Punishment	7.4	6.8	7.9	$S = 5.0$
Role Reversal	5.5	5.2	6.2	$W = 103.5^{**}$
	ALS = 116	ALS = 227	ALS = 348	

ALS = Average length of stay (in days) in program at Time 1,2,3.

$^{**}p < .01$; $^{***}p < .001$.

$t = t$ value $S = \text{Sign}$ $W = \text{Wilcoxon}$.

ethnic/racial characteristics of the mother and the age of her child. Scores at or below the 10th percentile represent very problematic mother-child interaction and are associated with poor cognitive development among children who are part of the mother-child dyad with these low scores. The normative data on the 10th percentile cutoff scores are based on mothers who have 12 or more years of education and are at least 20 years old. For women with infants between 1 and 5 months of age, the 10th percentile normative cutoff scores are 52 for Whites and 49 for both Blacks and Hispanics. For women with infants between 6 and 12 months of age, the cutoff score is 57 for Whites, 53 for Blacks, and 54 for Hispanics.

Barnard (1994) also reported that education is a much stronger predictor of group differences than ethnicity. Her data revealed that women with less than a high school education had significantly lower total scores on this measure than did women with 12 or more years of education. In this study, all but two women who participated in NCAST assessments were at least 20 years old when they were admitted to treatment, but approximately half of these women had not completed high school. Given the difference between the normative NCAST sample and this study's NCAST sample, it would be reasonable to assume that the proportion of women exhibiting problem scores (i.e., below the normative cutoff) would be relatively high. However, as the data in Table 3 indicate, comparisons to the normative data indicate that the proportion of women with problem scores is relatively low at the first assessment and remains low through the second and third assessments.

While findings that indicate relatively few women had very problematic mother-child interaction are encouraging, comparisons to the normative mean are even more encouraging. Scores at or above the normative mean reflect positive mother-child interaction (K. Barnard,

personal communication, May 28, 1996). As indicated in Table 3, at Program A over half of the women were scoring at or above the mean at the first assessment and White women exhibited considerable improvement between the first and second assessment. Similar comparisons for Program B for the largest participating ethnic/racial group, Black women, indicate a high proportion of women exhibited mother-child interaction below the mean at the first assessment, but the proportion having positive interaction improved dramatically between the first and second assessments from 27% to 100% and remained that high through the third assessment.

The findings suggest improvement in the number of women with positive mother-child interaction among three groups of women. Moreover, the number of women exhibiting problematic interaction, particularly at the first assessment, is lower than would be expected for the samples of women in this study while the number exhibiting positive interaction is higher than expected. These positive findings are likely to be related to the timing of the assessments. The women took the assessments after having been exposed to parenting training and after having lived for several months in a residential program that promoted positive mother-child interaction. Sample attrition and the timing of the assessments underline the need to use caution in interpreting the results of these data. Nonetheless, the results are very encouraging.

Relationship Between Client Characteristics and Improvement in APPI

The relationship between improvement on each of the four AAPI parenting domains and four client characteristics (age of admission, race, number of years of education, and number of prior admissions to substance abuse treatment) was examined separately for three categories

TABLE 3
Number of Women With Scores at/below 10th Percentile Cutoff^a and at /above Normative Mean^b by Ethnic Group and by Age of Infant

	6 Weeks			6 Months			12 Months		
	Total N	Problem Scores (# at/below cutoff)	Positive Interaction (# at/above mean)	Total N	Problem Scores (# at/below cutoff)	Positive Interaction (# at/above mean)	Total N	Problem Scores (# at/below cutoff)	Positive Interaction (# at/above mean)
Program A									
White	14	3	8	11	0	8	8	1	6
Black	19	2	11	13	2	9	7	1	4
Total	33	5	19	24	2	17	15	2	10
Program B									
White	2	0	1	3	1	2	2	0	1
Black	11	3	3	10	0	9	8	0	8
Total	13	3	4	13	1	11	10	0	9

^aCutoffs established by Barnard (1994) reported in article.

^bNormative Means established by Barnard; Whites \bar{x} = 64.29, SD = 7.27; Blacks \bar{x} = 62.63, SD = 9.37.

of Nurturing Program completers: (a) those from Program A; (b) those from Program B; and (c) those from both programs. As hypothesized, these analyses revealed no relationship between change in parenting skills and the four client characteristics.

Participants' Ratings of the Parenting Training

Analyses of information collected on the anonymous participant evaluation instrument underlined the significance of the parenting skill training for participants. These findings are presented collectively, as the responses are the women's own perceptions of changes rather than a quantitative and/or standardized measure of change. The overwhelming majority (ranging from 81% to 100%) felt they were doing better in the 10 areas rated. Forty-two of the 65 women who rated the parenting program provided comments about changes they made in parenting. The women's comments illustrate the extent to which they had internalized concepts emphasized in the Nurturing Program and provide concrete examples of positive changes in parenting behavior. An analysis of comments provided descriptions of changes in 6 of the parenting areas rated by clients (using time out; ignoring irritating behavior; giving praise and rewards; defining rules; stating consequences; and setting up routines), and in seven other parenting areas emphasized in the Nurturing Program (appropriate expectations; improved communication/empathy; improved patience/responsibility; involvement of children in decision making; positive time with children; physical punishment; and general improvement in parenting). Comments also provided insights on the impact of the parenting training on the women's lives.

The following examples illustrate the powerful quality of these changes. *Giving Praise and Reward*: "I use more praise and rewards for my kids when they are doing a good job and when they are not, point out their strengths and try to use that for them." *Positive Time with Children*: "I can do positive things with them like taking them out to eat, to the playground, and read them stories." *Physical Punishment*: "(I'm) talking more and not getting mad and hurting them." *Impact on Mother*: "In parenting I've received a lot of information about who I was, who I am, my strengths, fears, and that I don't know everything. I'm not a perfect mother, I'm a good mother—A change."

DISCUSSION

Collectively, these data demonstrate both the need for specialized services for pregnant and parenting substance abusing women as well as the need for further research regarding services for this population. The women who completed the parenting skill training made significant improvements in parenting attitudes and knowledge and

dramatic improvements in self-esteem. Moreover, the participants' ratings and descriptions of the impact of the parenting skill training were overwhelmingly positive and provide further evidence regarding the importance of the training. Observational data on a subset of the sample also demonstrated positive mother-child interaction over a 12-month period.

A surprising finding was that at first assessment the women scored at least average, and in some cases above average, on all but one of the parenting domains measured. The timing of the first assessment (29 days and 116 days after admission at Program A and Program B, respectively) may have positively biased the initial scores as the women had time to learn the acceptable test responses. It is also possible that the women brought more strengths to the program than might have been anticipated. The findings on the high initial scores, however, must be interpreted with caution as knowledge of what is appropriate behavior does not mean the women had the necessary skills for implementing appropriate behavior. For example, before taking the parenting training a woman might believe that she should not hit her child, but she may not have had the skills to avoid hitting her child when frustrated, angry, or otherwise upset. While the baseline AAPI scores were high on the parenting measures, the data also clearly demonstrated that the women experienced significant gains in parenting knowledge and attitudes. This is critically important as the more strongly one adheres to a concept, the more likely it is that the concept affects one's behavior. Consequently, positive changes in parenting scores do reflect an increased likelihood that the women will actually practice appropriate parenting as opposed to simply endorsing it.

Another interesting finding is that if length of time in treatment is taken into consideration, there were no notable differences between the two residential programs on the self-esteem measure. The clients at Program B took their first measure at a time comparable to the time Program A clients took their second assessment (an average of 117 days and 113 days after admission to the program). Similarly, Program B clients took their second assessment at a time fairly comparable to the time Program A completed their third assessment (an average of 230 days and 266 days respectively after admission to treatment). If the means scores are matched accordingly, the similarities are apparent (with $\bar{x} = 43$ for Program B at Time 1 and $\bar{x} = 42$ for Program A at Time 2; and with $\bar{x} = 37$ for Program B at Time 2 and $\bar{x} = 35$ at Time 3 for Program A). These findings suggest that the women from both programs might have been experiencing similar deficits in self-esteem when they began treatment as they experienced a similar level of improvement in self-esteem over a comparable period of time.

While clients at both programs exhibited positive changes on the Adult-Adolescent Parenting Inventory, the women at Program B exhibited less overall improvement on this measure than clients from Program A did.

These differences cannot be explained, as variation in self-esteem scores can, by differences in length of stay at the time of assessment. Possible reasons for the differences in AAPI scores include differences in implementation of the parenting program as well as other programmatic differences. As discussed earlier, considerable efforts were made to implement similar modifications of the Nurturing Program at each program, but there were some implementation differences across program sites. Differences in outcome could also be related to differences in the integration of the parenting program within each residential program. This evaluation, however, did not examine either of these implementation factors.

Although it is interesting to consider the reasons for differences in outcomes between the programs, the reasons are not critical to this assessment of the impact of the parenting training. The findings presented demonstrate that the women who completed the parenting training at both programs underwent considerable improvements, although not the same level of improvement in parenting scores across sites.

IMPLICATIONS

This study underlines the need for additional research regarding parenting services for pregnant and parenting women. It particularly underscores the need for additional research on program drop-outs. Program drop-out presented analytical difficulties for this evaluation but drop-out is very common in substance abuse treatment. Completion rate for long-term residential substance abuse treatment is frequently less than 50%. Moreover, while there is a dearth of literature on completion rates for pregnant and parenting women, it is well known in the substance abuse treatment community that it is extremely difficult to retain this group in treatment.

Given the high rate of drop-out, the impact of program drop-out needs to be more directly addressed in developing innovative interventions for clients in substance abuse treatment and in funding evaluations of these efforts. Evaluations require considerable funding in order to follow drop-outs. Until such funding occurs, evaluations of demonstration projects like the one presented in this study will continue to be limited to assessing the impact of interventions only on those who complete the intervention.

The lack of information on program dropouts, however, does not diminish the significance of this study's findings on the samples of women who completed the Nurturing Program. The changes in parenting attitudes and self-esteem demonstrated by this study's participants are quite remarkable given the extensive disadvantages and personal challenges they experienced, including lack of high school education, income well below the poverty level, a history of physical and/or sexual abuse, single parenthood, and an extensive history of substance abuse. These changes are important steps in breaking the cycle

of intergenerational abuse that some women had experienced and in decreasing the level of risk nearly all the women had for abusing or neglecting their children. The changes the women underwent also suggest that their children will be raised in a more nurturing environment than they would have been if their mothers had not undertaken parenting training. The critical implication of collective outcomes presented in this article is that parenting skill training should be considered an essential component of residential substance abuse treatment for pregnant and parenting women. The findings support the need for these services as well as their effectiveness.

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