

THESIS

FACTORS INFLUENCING THE EFFECTIVENESS OF A FAMILY INTERVENTION
FOR ADOLESCENT VERSUS ADULT MOTHERS

Submitted by

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WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY JILL R. WOOD ENTITLED FACTORS INFLUENCING THE EFFECTIVENESS OF A FAMILY INTERVENTION FOR ADOLESCENT VERSUS ADULT MOTHERS BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE.

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ABSTRACT OF THESIS

FACTORS INFLUENCING THE EFFECTIVENESS OF A FAMILY INTERVENTION FOR ADOLESCENT VERSUS ADULT MOTHERS

A family intervention program entitled DARE To Be You was found to be equally effective for both adolescent and adult mothers, but the factors that predicted program effectiveness differed for the two groups. Adolescent mothers were defined as those who were 19 or younger when their youngest child was born and were 23 or younger upon entry into the program, while the adult mothers were older than 22 when their youngest child was born and had a current age of 25 or older. The sample consisted primarily of Hispanic and Anglo mothers from both urban and rural sites, and Ute and Navajo Native Americans from rural or reservation sites. For both age groups, a low sense of competence in the maternal role prior to the intervention predicted a larger increase in maternal sense of competence, but an internal locus of control was only predictive of larger improvements in sense of competence for the adolescent mothers. Large social support networks were associated with larger improvements in positive parent-child interactions and nurturance for the adult mothers and improvements in the effective use of discipline for the Anglo adolescent mothers, but large support networks were associated with less improvement in the effective use of discipline for Native American and Hispanic adolescent mothers. Adolescent Native Americans did not increase as much as the other two ethnic groups in nurturance, and there was a trend toward an analogous difference for the adult mothers in the effective use of discipline. The amount of the variance explained by variables that predicted program effectiveness

was greater for the adolescent mothers (12% to 48%) than for the adult mothers (6% to 27%). A second line of inquiry examined the relation between maternal self-appraisals and parenting practices both before and after the intervention. The two significant differences that existed between the two age groups at follow-up were between positive attitude toward the maternal role and both communication and the use of harsh punishment. The relation between positive attitude and communication was positive for the adults and near zero for the adolescents, and the relation with harsh punishment was positive for the adolescents and negative for the adults. In conclusion, even after adolescent mothers become adults, they are still different from mothers who waited until adulthood to have children and may need special attention when they are involved in intervention programs.

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DEDICATION

I'd like to dedicate this thesis to my parents, Sharon and Keith Wood, for inspiring me to study families and parenting. As foster parents, they showed me what a difference a little consistency and a lot of love could make in a child's life. As my own parents, they continue to amaze me with their wisdom. I am blessed to have been born into their family.

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CHAPTER I

Review of Literature

Adolescent pregnancy is a circumstance faced by nearly one million girls in our country each year (U.S. Department of Commerce, 1996). Over 300,000 of these pregnancies are terminated by abortion, approximately 130,000 end in miscarriages (U.S. Department of Commerce, 1996), and less than 20,000 led to adoptions (Donnelley & Voydanoff, 1991). An unknown number of babies are informally adopted by family members, friends, or the father of the baby. This leaves approximately 500,000 babies to be raised by the adolescents, either alone, with varied degrees of help from their family or friends, or with the help of the child's father or a different partner.

The futures of these young mothers are not likely to be as positive as the futures of their age-mates who delay parenting responsibilities until they are adults (Furstenberg, Brooks-Gunn, & Morgan, 1987; Roosa & Vaughn, 1984). In addition, the outlook for their offspring is not as good as that of children born to adult mothers (Hardy, Welcher, Stanley & Dallas, 1978; Wadsworth, Taylor, Osborn, & Butler, 1984). In order to improve the outlook for these young mothers and their children, many intervention programs have been designed and implemented, but most focus on the dyad only while the baby is very young (e.g., Dunst, Vance, & Cooper, 1986) or the mother is still in school (e.g., Barth, Schinke, & Maxwell, 1985). Parenting intervention programs are

available for parents of older children, but it is not known how effective these programs are for adolescent mothers.

Adolescent mothers have been found to be different from adult mothers in maturity, self-esteem (Mercer, 1986a), locus of control (de Cubas & Field, 1984), and social support (Schilmoeller, Baranowski, & Higgins, 1991; Reis, 1989). These factors are considered determinants of parental functioning in Belsky's parenting model (Belsky, 1984; Belsky & Vondra, 1989), and this model is supported by the literature. Moreover, each of these factors has been found to be predictive of effectiveness in intervention programs (DePaulo, Brown, Ishii, & Fisher, 1981; Maisto & German, 1981; Wahler, 1980). These studies are among the few that examine the variables that relate to parenting intervention effectiveness. What remains to be explored is whether these factors operate differentially for adolescent and adult mothers. This study will begin to fill this gap in the literature by analyzing data gathered previously in conjunction with a parenting intervention program that serves both adolescent and adult mothers.

This literature review will discuss each of the aforementioned determinants of parenting along with their relation to parenting practices and maternal age. In addition, the research demonstrating interrelations between these variables will be presented, as will evidence of the relation each of these variables has to the success of parenting intervention programs. Two additional variables, parental self-appraisals and ethnicity, will also be examined in a similar format.

Belsky's Model of the Determinants of Parenting

Jay Belsky (1984; Belsky & Vondra, 1989) developed a model of parenting that proposes three main components of the parenting system that contribute to parenting

practices. The three components are the parent's psychological resources (e.g., mental health, self-esteem, maturity), the context in which the parenting occurs (e.g., social support, unemployment), and the child's characteristics (e.g., temperament, hyperactivity). Each of these components can either support or undermine growth-promoting parenting, but the components have different weights in determining the parenting outcome, with the parent's psychological resources having a greater weight than the other two areas in determining parenting practices. Positive parental psychological resources can overcome a negative disposition in the child or a negative context for rearing the child, but when the parent has a low level of psychological resources, the input from the child and the context are less potent in overcoming the shortfall in the parent's resources.

Maturity

One of the psychological resources discussed in Belsky's model is the maturity of the parent. Although maturity is not always equated with age, Belsky views age as an appropriate estimator of maturity, and it will be used as such in the present study. According to Erikson's (1950) theory of psychosocial development, adolescence is the time when the individual goes through the process of developing an identity. Erikson purports that it is only after an identity is developed that a person can experience intimacy with other individuals, and that the establishment of intimacy is a necessary prerequisite to the satisfactory development of offspring. Although increased age does not ensure the successful accomplishment of these stages, it is unlikely that an adolescent will have proceeded through to the stage of generativity, and it seems that one who is

struggling with issues of identity would not have the necessary resources to focus on the development of another.

Larsen and McCreary Juhasz (1985) interpreted Erikson to provide a definition of the social-emotional maturity important to parenting. Their definition includes the "ability and desire to be productive, to nurture, and devote one's self to others and to productive work" and the ability to balance "her needs as a mother and individual with those of the child" (p. 826). The work of Heath suggests that immature mothers are egocentric, lack the ability to empathize with their children, and are threatened by problems in caring for their children, which may result in inconsistent parenting and punitive parenting. The mature mother, on the other hand, can empathize with her child and can more comfortably anticipate and reflect on child-rearing difficulties, which result in more consistent and effective parenting practices.

A different line of research provides evidence of a positive relation between age and maturity by demonstrating an increase in the use of mature coping and defense strategies (e.g., suppression, reversal) and a decrease in the use of aggressive and immature coping and defense strategies (e.g., displacement, projection) from age 15 to 60 (Diehl, Coyle, & Labouvie-Vief, 1996). It seems that the use of more mature coping and defense strategies would be beneficial to effective parenting. Another study (Speier, Melese-D'Hospital, Tschann, Moore, & Adler, 1997) identified a disconcerting relation between contraceptive use and ego maturity. Whereas 72% of those classified as having high ego maturity were effective contraceptive users, only 13% of those classified as having low ego maturity used effective forms of contraception. These results suggest

that within adolescents, who are less mature than adults as a group, those who are the least mature are more likely to become parents.

Numerous studies provide evidence that the immaturity of adolescent mothers does translate into less appropriate parenting practices. Using age as a continuous variable, Ragozin, Basham, Crnic, Greenberg, and Robinson (1982) found a strong, positive relation between age and maternal affect. The difference in maturity between adolescent and adult mothers, however, can be expected to be greater than the age-related variations within the adult population because the development of the adolescent is disrupted by the off-time birth. Adolescence is a time when tasks vital to the attainment of maturity are accomplished and the introduction of parenting responsibilities might have long-term negative effects on the accomplishment of these tasks.

The consequences of the lack of maturity of adolescent mothers can be seen in their parenting attitudes and behaviors that in turn result in poorer outcomes for their offspring. These poorer outcomes for their children are also related to the diminished outcomes for the mothers. In response to the negative outcomes for both mothers and children, intervention programs have been established that are designed to improve the circumstances of adolescent mothers and their children. Within some of these programs, differences in effectiveness related to age and maturity level have been noted (Baskin, Umansky, & Sanders, 1987).

Adolescent development disrupted. According to Erikson's theory of the psychosocial stages of human development (Erikson, 1950), adolescence is a time for identity development when the adolescent tries on various roles with the goal being an integration of new and old identifications into one solid identity. A solid identity is

necessary for successful resolution in the next stage, intimacy versus isolation, which Erikson proposed occurs during young adulthood. It is not until these two stages are resolved that the issue of generativity or the “interest in establishing and guiding the next generation” (Erikson, 1950, p. 231) is tackled. When an adolescent takes on parenting responsibilities, she is attempting to operate at a stage for which she has not had a chance to prepare. Adolescent pregnancy may lead some adolescent women to settle down, but this jump in stages does not seem to be optimal for either adolescent mothers or their children. In fact, many studies provide evidence that adolescent parenting is negatively related to the quality of parent-child interactions.

Deficits in adolescent parenting practices. As predicted by Belsky’s model, deficiencies in the interactions of adolescent mothers and their children have been noted in the research literature. Differences between adolescent and adult mothers have been found in the areas of knowledge about child development, punishment and restriction, communication, affective interactions, and stimulation in the home environment. An unfortunate weakness in this body of literature is the common failure to control for SES and education. It is difficult to identify a measure of SES for adolescent mothers because they may still be living in their parental household and because they can not be expected to have completed high school if they are under 18 years old. Regardless, a greater attempt must be made at exploring the role of SES and education when comparing the behaviors and beliefs of adolescent and adult mothers. In this section on adolescent parenting practices and in the next section on outcomes for their children, it would become cumbersome to note each case in which SES was not controlled. Rather than

identifying each of the studies in this section that do *not* control for SES, it will be noted wherever such an attempt has been made.

A fundamental difference between adolescent and adult mothers is the lower level of knowledge possessed by the adolescents. Sommer, Whitman, Borkowski, and Schellenbach (1993) noted that adolescent mothers had less knowledge about child care, although this difference was also related to SES, and Reis (1989) compared adolescent and adult mothers with low levels of income and education and found that the adolescents exhibited less knowledge of child development, regardless of ethnicity. This lack of knowledge is of concern considering evidence that a relation exists between knowledge about child development and parenting skill, even when maternal education and family income are controlled (Stevens, 1984).

One of the most troubling results of adolescent mothers' lack of maturity is a greater use of punishment and restriction. The adolescent mothers used more punishment in a study by Garcia Coll, Hoffman, Van Houten, and Oh (1987), but this difference was no longer significant after SES and education were controlled for. In Mercer's (1986b) study of three groups of mothers, ages 15-19, 20-29, and 30-42 years, the adolescent mothers scored lower than both of the older groups on maternal behaviors including use of punishment, physical freedom available to the child, and degree of protectiveness. The adolescent mothers also scored less optimally on a measure of sadistic and strict disciplinarian attitudes. Reis (1989) found that adolescent mothers were more punitive than the adult mothers in her low-income, low-education sample, regardless of their ethnicity. Fox, Baisch, Goldberg, and Hochmuth (1987) reported that adolescent mothers are more likely to use corporal punishment. Greater intrusiveness by adolescent

mothers is suggested by the fact that a higher percentage of infants of adolescent mothers have been classified as having insecure/avoidant attachments than in samples that include primarily infants with older mothers (Lamb, Hopps, & Elster, 1987).

Another domain in which adolescent mothers have been found to perform less optimally than their adult counterparts is in their communication and interactions with their children. They tend to vocalize less to their infants (Culp, Appelbaum, Osofsky, & Levy, 1988; Roosa, Fitzgerald, & Carson, 1982), even when all mothers in the study have lower than 12 years of education (Culp, Culp, Osofsky, & Osofsky, 1991). Adolescent mothers have also been found to be less responsive (Roosa et al., 1982), although this relation seems to be largely due to lower levels of SES and education (Garcia Coll et al., 1987). Adolescent mothers also spend less time in mutual gaze with their infants (Roosa et al., 1982) and have less optimal behavior in eliciting vocalizations from their infants (Ragozin et al., 1982). Evidence also exists that adolescent mothers are less inventive and appropriate and have less patience in play situations, even when education is controlled (Culp et al., 1991). Reduced involvement of adolescent mothers with their infants exists even when both SES and education are controlled (Garcia Coll et al., 1987).

Their maturity also influences the parenting attitudes and affect of adolescent mothers. Culp and his colleagues (1991) compared adolescent and adult mothers, controlling for education, and found adolescent mothers were less expressive, less positive, and showed less delight in a feeding interaction. Furthermore, in the study by Fox and his colleagues (1987), the adolescent mothers scored lower on empathy than did the adults. Adolescent mothers also maintain less appropriate parenting attitudes and

styles (Sommer et al., 1993) and tend to have higher expectations of their infants to meet their own needs (Fox et al., 1987; Mercer, 1986a).

A final domain in which age is related to optimal parenting is in the stimulation and environment provided. Garcia Coll and her colleagues (1987) compared adolescent and adult mothers on the HOME Inventory and found the adolescents to provide less variety of stimulation and to have lower total HOME scores at four months, even when support and stress were controlled, but this relation was not significant after SES and education were controlled. In addition, adolescent mothers are less likely to use items that provide stimulation opportunities, such as a mobile over their baby's crib (Roosa et al., 1982).

If these deficits were eliminated as adolescent mothers and their children become older, intervention at this later stage would not be necessary. Unfortunately, the work of Roosa and Vaughn (1984) suggests that as adolescent mothers become older, the deficits in knowledge and maternal attitudes are not necessarily remedied. They compared mothers who were adolescents when their children were born to mothers who were adults when their children were born. Due to the age of the children (2-4 years old), some of the adolescent mothers were no longer in their teens when the data were gathered. The adolescent mothers had lower levels of knowledge about child development and less optimal scores for causation of their child's behavior, satisfaction with their child, and fostering of communication with their child. These results support the need for continued intervention after adolescent mothers become adults. Although the mothers from both age groups came from low-income populations, the adult mothers had

significantly more education and the younger group consisted of more ethnic minorities, rendering these findings somewhat ambiguous.

Outcomes for children of adolescent mothers. As one might suspect, these differences in parenting styles and beliefs are translated into less positive outcomes for children of adolescent mothers. At birth and during early infancy, the differences between children of adolescents and adults are minimal or nonexistent (Mercer, 1986a, Roosa et al., 1982), but as the child develops deficits appear and extend through the high school years. In Mercer's (1986a) study, the children of adolescent mothers were ahead in both motor and social development at 1 and 4 months, but at 8 months no differences were found between the different groups. At 12 months, the infants of the adolescent mothers had fallen behind the infants of the mothers in their twenties in social development. The loss of developmental advantage for the infants of the adolescent mothers coincided with a decrease in assistance from the mothers of the adolescents, which provides a possible explanation for the decline in the competence of their babies.

Broman (1981) found similar results. In her sample, the infants of the adolescents maintained an advantage on the Bayley Mental and Motor Scale at one year, but by age 4, the children of the adolescent mothers had lower IQ scores, were less advanced in motor development, and had a higher frequency of deviant behavior. All of these differences, however, were explained more by SES than by age. Lower intelligence scores for children of adolescent mothers were identified by Hardy et al. (1978) at 8 months, 4 years, 7 years and 12 years. The mothers of these children also had lower education and income, and higher fertility rates, than the adult comparison group. Similar deficits in the development of children of adolescents have been

identified in other studies (Belmont, Cohen, Dryfoos, Stein, & Zayac, 1981; Wadsworth et al., 1982).

The trend of declining competence and functioning of the children of adolescent mothers continues through the high school years. In a longitudinal study of adolescent mothers and their children (Furstenberg et al., 1987), by high school, 50% of the children had repeated at least one grade and 40% had been expelled or suspended in the past 5 years. These children also had high rates of delinquency and substance abuse, and the girls were more likely than the comparison group to have become pregnant, thereby continuing the cycle of adolescent pregnancy and parenting.

Often, the differences between the children of adolescent and adult mothers are diminished or disappear when factors such as education, SES, marital status, parity, and employment are controlled. Barratt (1991) identified each of these factors as pathways to negative outcomes for the children of adolescents. The negative outcomes for the offspring of adolescent mothers are intertwined with the negative outcomes for the mother that are associated with adolescent pregnancy and parenting.

Outcomes for adolescent mothers. One result of the attenuation of adolescent mothers' identity development is that their prospects are diminished in the domains of education, employment, economics, and marital stability. Erikson (1950) identified adolescence as a time when an individual must settle on an occupational identity. When adolescents become mothers their occupational options become limited or more difficult to attain. Furthermore, Erikson's theory would predict that the disruption in identity development caused by early parenting would result in difficulty with the next stage in

which true intimacy becomes possible. The apparent result of this is the instability of adolescent mothers' marital relationships.

A downward economic cycle begins when the education of adolescent mothers is prematurely terminated. In a study by McCulloch and Scherman (1991), 51% of the adolescent mothers did not return to high school after having their baby and only 33% of those planned to return to school with an additional 17% planning to get a GED. These figures are similar to those reported in an earlier study in which less than half of the women who gave birth before age 18 completed 12 years of education (Moore, Hofferth, Wertheimer, Waite, & Caldwell, 1981).

The employment opportunities of adolescent mothers are diminished by their early entry into parenthood in addition to the curtailment of their education. These effects on employment tend to be long term. In the Furstenberg et al. (1987) study, at two years after the birth of the first child only 45% of the adolescent mothers were employed, compared to 59% of the comparison group. In addition, the jobs held by the comparison group were better paying jobs. Similarly, in a study of mothers of 2 to 4 year olds, the one-half of the adolescent mothers who worked generally had lower paying and less prestigious jobs than the two-thirds of the adult mothers who worked (Roosa & Vaughn, 1984).

The decreased employment opportunities of adolescent mothers make economic difficulties highly probable. As an indicator of economic difficulties, approximately 75% of single adolescent mothers receive AFDC (Aid to Families with Dependent Children) within four years of the birth of their first child (Committee on Ways and Means, 1989). Furthermore, in the Furstenberg et al. (1987) longitudinal study, at five

years after the birth of the child one-third of the mothers were on welfare compared to only five percent of the comparison group. There were long-term effects for many of these mothers. At the 12-year follow-up, 25% of the adolescent mothers had received welfare in the last year and 70% had received welfare during the period of the study. With the changes to the welfare laws, this protection may not be there for these mothers when they need it.

These economic difficulties are exacerbated by the differences in family composition experienced by adolescent mothers, namely decreased marital stability and increased fertility. Reduced marital prospects and stability (Cooksey, 1997) put an additional strain on the economic status of adolescent mothers and their children due to the difficulties of raising a child alone, such as reduced income and a greater need for childcare. These difficulties become more significant as the number of children to raise increases. Moore and her colleagues (1981) discovered a strong inverse relation between parity and a mother's age at first birth. The average number of children ranged from 5.3 for a woman who had her first child at 15 or younger to 2.5 for those who waited until 24 to have their first child. These mothers were 35 to 52 years old at the time of this analysis, which indicates they were near the end of their child-bearing years. In a like manner, Furstenberg et al. (1987) reported at the five-year follow-up that the number of children born to the adolescent mothers exceeded the number they had desired near the birth of their first child. It is likely that this was due to the fact that only one-fifth of these women were reliable contraceptive users. In addition to adding to economic difficulties, the increased fertility of mothers can have more direct negative effects on their children. Barratt (1991) found that mothers who had fewer children were less

punitive and more involved with their children, and the cognitive outcomes for children were also less favorable when the mother's fertility was high. These facts help to explain why these children fall behind in the preschool years. In addition to affecting parenting practices and outcomes for children, maturity also has been found to have effects on program impact, which will be discussed next.

Maturity and intervention effectiveness. Many intervention programs have been developed, implemented, and studied as a response to the negative outcomes of early parenting for adolescent mothers and their children. Within these studies, age-related differences in program success have been identified. Although most studies only compare mothers who are adolescents, one study involved both adolescent and adult mothers. In an infant development program that served both adult and adolescent parents, age differences in program effectiveness were found in the use of birth control and obtaining regular health care (Wieder, Poisson, Lourie, & Greenspan, 1988). Adolescent mothers showed a more positive effect directly after the intervention, but at follow-up the outcomes were more positive for the adult mothers.

Most other studies that consider age in relation to the effectiveness of intervention programs looked at age differences within groups of adolescent mothers. These studies have indicated that what is effective in intervention with older adolescents is not always effective for younger adolescents. Baskin et al. (1987) found that whereas early adolescents had no interest in a program designed to increase maternal responsiveness, middle adolescents responded well to external motivators (money) and older adolescents were internally motivated to learn. Although it was more difficult to involve the less mature mothers, when they did participate, they demonstrated the greatest level of

program-related gains, perhaps because they had the most to gain. Age differences in effectiveness also exist for different methods of program delivery. One program found that classes were more effective for young adolescent mothers, but home visits worked better for older adolescents (Badger, 1987). Clearly, it should not be assumed that a program works equally well for mothers of all ages.

In summary, adolescent mothers are less likely than adult mothers to have the psychological resource of maturity as one of the resources available to them in their parenting endeavors, and an early transition to parenting responsibilities may have a negative effect on the normal processes that lead to maturity. Many studies have documented the negative effects of adolescent mothers' youth on their parenting practices, as well as on the outcomes for their children, and early parenting is often associated with low levels of education and socioeconomic status. Furthermore, studies of some of the programs that have been developed in an attempt to ameliorate these problems have identified age differences in program effectiveness. Unfortunately, there are indications that adolescent mothers not only lack maturity, but are also often low in self-esteem, another of the psychological resources identified as important to parenting practices.

Self-Esteem

A second psychological resource discussed by Belsky in relation to his parenting model is self-esteem (Belsky & Vondra, 1989). In support of Belsky's model, self-esteem has been positively associated with parenting practices (Mercer, 1986a). Furthermore, low self-esteem has been linked to adolescent pregnancy and child bearing, and differences in the self-esteem of adolescent as well as adult mothers have been

identified as a pathway to less optimal outcomes for children. Certainly, these facts indicate a need for intervention to focus on self-appraisals. However, a review of the literature by Harter (1998) suggested that the global attribute of self-esteem is relatively stable and that the most effective interventions for altering evaluations of the self are programs aimed at particular domains. Such a construct, parental self-appraisals, has been studied and been found to be related to parenting practices. Parental self-appraisals include self-efficacy and satisfaction in the parental role, two factors have been found to differ according to maternal age (Gross, Rocissano, & Roncoli, 1989; Mercer, Hackley, & Bostrom, 1984). Because links also exist between self-efficacy and intervention effectiveness (Fritz & MacPhee, 1991), age-related differences in the consequences of this variable for parenting intervention effectiveness should be explored.

The relation of self-esteem to parenting. In support of Belsky's model, high parental self-esteem has been shown to have a positive effect on parenting practices. In Mercer's study (1986a), self-esteem was predictive of adolescent maternal behavior when children were 1 and 4 months old, and ways of handling irritating child behaviors when children were 12 months. In addition, self-esteem was the major predictor of maternal role attainment when children were 12 months old for the adolescent and adult mothers combined.

The most harmful outcome of parents' low self-esteem is child abuse (Hamilton, Stiles, Melowsky, & Bela, 1987; Perry, Wells, & Doren, 1983). Fortunately, there is evidence that improving parental self-esteem can interrupt the cycle of abuse. In a group of women who were abused as children, a positive self-esteem separated those who were

adequate caregivers from those who went on to abuse their own children (Pianta, Egeland, & Erickson, 1989).

The relation of self-esteem to adolescent child bearing. Low self-esteem has been suggested as one of the causes of adolescent pregnancy. Although this notion is not wholly supported by the literature, the role of self-esteem in the resolution of pregnancy appears consistent. Plotnick (1992) reported that self-esteem was not related to becoming pregnant in a group of adolescents, but that it was positively related to the resolution of the pregnancy through abortion, and another study identified a positive relation between the choice to abort and self-esteem (Medora, Goldstein, & von der Hellen, 1994). The results of an analysis of the National Longitudinal Survey of Youth indicated that girls who had higher self-esteem were less likely to become unwed mothers (Plotnick & Butler, 1991). An interesting finding in this study was that self-esteem was significantly related to nonmarital child bearing for White adolescents, but not for the full sample, indicating that some ethnic differences exist in this trend.

A number of studies reveal low levels of self-esteem among adolescent mothers. Within an ethnically mixed group of predominantly poor adolescents, both pregnant and parenting teens were found to have lower self-esteem than the norm, whereas the comparison group scored above the norm (Barth, Schinke, & Maxwell, 1983). Complementing these findings, Thompson (1984) reported that adolescent mothers of children 3 months to 2 years had lower levels of self-esteem than both the comparison group and the norm. In contrast, Matsushashi and Felice (1991) found pregnant adolescents to score in the normal range for overall self-esteem while their matched, never-pregnant group scored below the norm. Furthermore, pregnant adolescents who

were in their third trimester had more positive body images and scored lower in self-criticism than did the control group.

Some investigators have found no differences in the self-esteem of adolescent mothers and adolescents with no children (Robinson & Frank, 1994; Streetman, 1987), suggesting that these differences do not hold for all populations, but the work of Drummond and Hansford (1991) indicates a sensitivity of findings to the instruments used. They used two instruments, the Coopersmith Self-Esteem Inventory and the Culture Free Self-Esteem Inventory, to measure the self-esteem of a group of predominately Black adolescent mothers. The group scored in the average range on Coopersmith's measure but they scored in the 19th percentile on the Culture Free measure.

Evidence indicating a relation between sexual abuse and adolescent pregnancy provides a possible cause for low levels of self-esteem among adolescent mothers. In McCullogh and Scherman's (1991) group of pregnant or parenting adolescents, 43% reported sexual abuse during adolescence or childhood. In their review of the literature, Rainey, Stevens-Simon, and Kaplan (1995) noted sexual abuse rates of 50% to 60% for the total population of adolescents who become pregnant and 70% for White adolescents. In addition to affecting self-esteem, such a relation indicates a need for identification of sexually abused adolescent mothers and additional interventions to deal with this issue.

The above discussion indicates differences in self-esteem levels between adolescent mothers and their peers, but age differences in the self-esteem of mothers would be more germane to the current study. Such differences have been documented in the literature. Mercer's (1986a) adolescent group had significantly lower self-esteem than the two adult groups and in another study of adolescent mothers, self-esteem was

positively associated with age (Samuels, Stockdale, & Crase, 1994). The low self-esteem of adolescent mothers may contribute to negative parenting practices and merits the attention of intervention efforts. However, efforts might be better spent on altering the self-appraisals of these mothers within the domain of the mother role.

Parental Self-Appraisals

The construct of self-esteem is considered to be a fairly stable characteristic of the individual (Harter, 1998), which suggests that it is not very responsive to short-term intervention efforts. Although self-esteem has some utility in the description and prediction of parental functioning, a more important construct on which to focus in order to improve the circumstances of parents and their children is parental self-appraisals, a domain-specific attribute. This idea gains support in light of a meta-analysis of Gordon's Parent Effectiveness Training (PET, Cedar & Levant, 1990) and an evaluation of eight parent education programs, some of which used PET (Barber, 1992). The meta-analysis found the effects of PET on the parents' global self-esteem to be "low to nil" (Cedar & Levant, 1990, p. 378), but the review of eight programs identified increases in the parents' self-efficacy in the parental role.

Bandura (1997) has described self-efficacy in detail. Whereas self-esteem is a global sense of self-worth, self-efficacy is people's beliefs in their ability to accomplish a particular task. Self-efficacy is not the sole determinant of success, but people's self-efficacy beliefs influence what they will attempt to do, how much effort they will put into a task, and how persistent they will be when faced with difficulties. Without a belief in one's efficacy, there is little motivation to put forth effort or persist in the face of difficulties.

Self-efficacy and self-esteem are related in that self-esteem may arise from personal competence in a specific domain if individuals and their culture value success in that domain. Also, when people's standards of competence in an area are higher than they can achieve, self-esteem may be undermined (Bandura, 1997). These statements suggest that the global self-esteem of mothers may be related to their sense of competence in the maternal role. In a sample consisting of both adolescent and adult mothers of 2 year olds, the correlation between global self-esteem and parenting confidence was strong ($r = .64$, Williams, et al., 1987). Similar result were found with an adult sample in the first eight months after delivery (Mercer & Ferketich, 1994) and in a group of adolescent mothers whose children ranged in age from 2 weeks to 3 years (Shapiro & Mangelsdorf, 1994).

Although people's global self-esteem may reflect their beliefs in their self-efficacy, according to Bandura's (1997) theory self-esteem does not have the power of self-efficacy for predicting behavior. The work of Williams et al. (1987) demonstrates this concept. They found that the quality of the relationships of mothers and their 2-year-old children were positively correlated with both maternal confidence and global self-esteem, but the correlation was greater for maternal confidence than for self-esteem ($r = .38$ vs. $r = .21$). In addition, a review by Harter (1998) suggested that the most effective interventions for improving self-evaluations are aimed at specific domains. Therefore, the improvement of self-efficacy in the parental role is a more practical goal for intervention than is an increase in global self-esteem. Evidence of a positive relation between maternal self-efficacy and maternal behaviors would provide further support for this goal.

The relation of parental self-appraisals to parenting. Bandura's theory predicts that mothers with high parental self-efficacy will be more competent in their parenting practices. In fact, some research has identified a positive correlation between these two variables. Using a maternal self-efficacy measure that was task specific rather than global, Teti and Gelfand (1991) found maternal efficacy to be significantly correlated with maternal behavioral competence for mothers of infants 3 to 13 months old. This relation held even when education, income, infant age, marital status, and social-marital supports were controlled. These mothers were primarily adults and over half of them were depressed.

In a separate analysis of related data, Teti, Gelfand, and Pompa (1990) found that within a depressed group of mothers, maternal competence was related to variables such as marital harmony, major negative life events, daily hassles, and infant difficulty before, but not after, self-efficacy was controlled. This suggests that self-efficacy plays a mediational role between the psychosocial environment of depressed mothers and their behavioral competence with their infants. Maternal self-efficacy was more strongly related to competence ($r = .42$) than any other variables examined with the closest being marital harmony ($r = .40$) and the next closest being daily hassles ($r = .29$).

The work of Bohlin and Hagekull (1987) also identified a strong relation between maternal confidence and mothers' interactive behavior with their 1- to 5-month-old infants. Mother/infant dyads were divided into two groups, those with and without interactional problems, and an interview was used to assess maternal self-confidence. The correlation between maternal confidence and interactive behavior reported for the group without interactional problems was $r = .58$. When the two groups were compared,

the group with problems reported lower self-confidence and lower satisfaction in the maternal role.

Another study provides evidence of a relation between parental confidence and competence for parents of elementary-school children. Campis, Lyman, and Prentice-Dunn (1986) compared parents of elementary school age children who were having difficulties in the parenting role with a similar group who did not experience such difficulties. Those with difficulties scored less ideally on three subscales of the Parental Locus of Control scale: parental efficacy, child control, and parental control.

Similar studies that have failed to find a relation between maternal self-appraisals and parenting practices in certain groups of mothers, specifically mothers of premature babies, mothers in the postnatal period, and adolescent mothers, will be reviewed next. The work of Seashore, Leifer, Barnett, and Leiderman (1973) indicated that the relation between maternal confidence and competence is disrupted for mothers of premature babies. They examined the relation between skill and confidence in the maternal role. Of the seven different times of measurement that extended from birth to one month after discharge from the nursery, a relation between maternal confidence and behavior was found at only one point. In another group of mothers of premature infants, Zahr (1991) failed to find a correlation between maternal confidence and mother-infant interactions at 4 and 8 months.

In addition, the positive relation between maternal confidence and competence does not seem to exist during the postnatal period, especially when the mothers are adolescents. In a group of mothers with premature infants, Walker, Crain, and Thompson (1986) uncovered a correlation between maternal confidence and both

maternal sensitivity and responsiveness in a group of primiparous women when their infants were 4 to 6 weeks old, but no correlation was found when the babies were 1 to 3 days old. The authors suggest that "maternal identity and perceived role attainment are not extensively interwoven with the behavioral component of role attainment during the post-partum period" (p. 354). Complementing these findings, Julian (1983) found no relation between perceived and actual parenting competence in a group of adolescent mothers 12 to 24 hours after delivery of their babies.

Failure to find correlations in postnatal studies involving primiparous women is not surprising because these women have no personal experience from which to develop a sense of parental self-efficacy. However, the relation between confidence and competence may differ for adolescent and adult mothers. Fuller (1987; as cited in Conrad, Gross, Fogg, & Ruchala, 1992) reported an inverse relation between maternal confidence and mother-infant interactions in a sample of adolescent mothers. In a pertinent study comparing adolescent and adult mothers shortly after delivery, the adolescents perceived themselves as being better prepared than the adult mothers for motherhood (Kemp, Sibley, & Pond, 1990). Over half of the adolescents felt "well prepared" whereas most adults reported feeling "moderately prepared," but no differences in the behavior of the mother-infant dyads were found for the two groups. These results led to a related phenomenon, overconfidence in the maternal role.

Overconfidence in the maternal role. Davis (1989) identified a group of adult mothers who also had levels of confidence inconsistent with their competence. She revealed a curvilinear relationship between maternal self-confidence and competence in a group of mothers with a high level of income and education. Although most mothers

with high confidence also had interactional competence, some mothers were high in confidence but low in competence. She suggested that overconfidence might result in some cases from an ignorance of the infant's complex processes of cognitive and emotional development.

The work of Conrad et al. (1992) suggests that knowledge about child development further helps to explain the difference between high confidence mothers with low and high levels of competence. They found no main effect for mothers' knowledge and maternal confidence in a predominately White, well-educated group, but an interesting interaction effect was found. The mothers were divided into three groups based on level of knowledge and two groups based on level of maternal confidence. Among more confident mothers, mother-toddler interactions were more positive for mothers who were the most knowledgeable compared to those who were the least knowledgeable. Among less confident mothers, no significant differences in quality of interaction were found regardless of their knowledge of development. Adolescent mothers' lower levels of knowledge would seem to make them more likely than adult mothers to be overconfident in the maternal role.

Increased confidence and satisfaction in the maternal role as a desired outcome of parenting intervention. The notion of increased parenting self-efficacy as a desired outcome of intervention programs is supported by the work of Conrad and her colleagues. If a consistent relation does not exist between parenting self-efficacy and parenting competence, such a goal would lack support from the literature. However, because most parenting intervention programs also seek to increase parents' knowledge levels, the relation between parental self-efficacy and competence should be stronger

after the intervention than it was before the intervention, making an increase in self-efficacy more meaningful.

In addition, a specific benefit of improvements in maternal self-appraisals may be a decrease in negative reactions by mothers to their children's difficult behaviors. Bugental's work (Bugental, Blue, & Cruzcosa, 1989; Bugental, Blue, & Lewis, 1990) indicates that caregivers who perceive themselves to have little control over caregiving outcomes are more likely to be abusive, use nonabusive coerciveness, and show negative affect to children whose behavior is difficult. An improved sense of parenting efficacy might improve the interactions of these mothers with their children.

Improvement in maternal satisfaction may also aid in the prevention of child abuse. Trickett and Susman (1988) compared 28 abusive families and 28 non-abusive families matched for demographic characteristics. Abusive parents were found to have less satisfaction in the parental role and to perceive child rearing as more difficult than non-abusive parents. The research of Mash, Johnston, and Kovitz (1983) shows that these differences are not due solely to differences in the abused child's behavior. They observed mother-child interactions of physically abused and non-abused children in a laboratory setting and found no behavioral differences between the two groups of children. However, the abusive mothers reported a level of behavior problems for their children that was two standard deviations above the norm. The abusive mothers in this study also reported lower levels of both maternal self-efficacy and satisfaction.

Another advantage to be gained through the improvement of maternal self-appraisals is a protection from depression. Maternal depression has been linked to less optimal parenting practices (Cohn, Matias, Tronick, Connell, & Lyons-Ruth, 1986; Field,

Healy, Goldstein, & Guthertz, 1990). Oliooff and Aboud (1991) provided evidence that a strong sense of parenting self-efficacy helps to prevent postpartum depression. They found the level of parenting self-efficacy to add 10% in the prediction of post-partum dysphoria beyond the combination of global self-esteem and dysphoria measured prior to giving birth. Furthermore, Cutrona and Troutman (1986) found evidence that social support helps to prevent postpartum depression, a relation that was mediated by self-efficacy.

Improvements in parental self-appraisals are also a desirable outcome of parenting interventions as an indirect measure of improvements in parent-child interactions. Low parental self-efficacy and satisfaction are associated with child behavior problems and less positive parent-child relationships (Mouton & Tuma, 1988), and a high sense of competence and satisfaction in the maternal role is associated with harmonious parent-child relationships (MacPhee, Benson, & Bullock, 1986) and more positive perceptions of children's behavior (Johnston & Mash, 1989; Zahr, 1991). An increase in knowledge about how to handle difficult child behaviors should lead to a greater number of successful behavioral outcomes between mother and child with a resulting increase in maternal self-efficacy. Bandura (1995) identifies personal experience as the most potent source of self-efficacy.

Pathways to increasing parental self-appraisals. Bandura (1995) described four main sources of influence on self-efficacy. The first source is personal experiences, with successes building efficacy and failures tending to diminish it. The second influence is vicarious experiences. When people see others attain success at a task, they tend to believe they can also be successful at that task, especially if they perceive themselves to

be similar to the model. The last two influences are social persuasion and how physiological and emotional states are interpreted.

An intervention program could bring about change through each of these sources. A program could provide information about new parenting strategies and opportunities to practice them in a controlled setting. The use of these strategies with the child outside of the program would be likely to provide experiences of success in handling difficult child behaviors where before there was failure. Modeling by the teacher and discussion with other parents in an intervention group could provide vicarious experiences that influence the parent's self-efficacy. The facilitator and other parents, who might be perceived as similar, could provide examples of techniques they have used successfully with their own children. Similarly, social persuasion by the teacher and other parents could bring about an increase in parental self-efficacy. Such persuasion might include increasing the parents' awareness of their own successes. Finally, through discussion with other parents, normalization of parenting problems might bring about an understanding that other parents also have physical stress reactions to difficult child behaviors, which might lead to a reinterpretation of these reactions as normal rather than as a sign of an inability to handle the situation.

Age differences in maternal self-appraisals. Differences in global self-esteem between adolescent and adult mothers, along with the fact that those adolescents who have low self-esteem are more likely to become parents than adolescents with higher self-esteem, point to the likelihood of a relation between age and maternal self-appraisals. Within adult samples, positive relations between age and maternal confidence have been revealed that are stronger than the relations between maternal confidence and

education, ethnicity, parity, income, child's age, and birth order (Conrad et al., 1992; Gross et al., 1989).

When adolescent mothers are included, the relation between maternal confidence and age does not emerge, although these discrepant results could be due to income levels rather than age. Two studies compared adolescents and adults and found no differences in maternal confidence. The women in one study were pregnant, and the majority of these women were single, Black, and had low income levels (Pond & Kemp, 1992). The women in the other study had children 2 to 4 years old, and their income levels were also low (Roosa & Vaughn, 1984). Within these low-income groups, the confidence levels of both adolescent and adult women were low.

Age has also been found to be a factor in the satisfaction with motherhood. In a study comparing pregnant adolescents and adults, the adolescents were less satisfied with their pregnancy (Culp et al., 1988). In a sample including adolescent and adult mothers, Ragozin et al. (1982) found that maternal age predicted satisfaction with the maternal role and with the baby better than did parity, education, whether the family was receiving public assistance, and whether the baby was born full term or prematurely. In addition, in the subset of mothers of preterm babies, an interaction between age and education was found for satisfaction. Although less-educated older women were the most satisfied with their babies, less educated younger mothers were the least satisfied, but age had little effect for the women with more education. Unfortunately, not many adolescent mothers attain a high level of education so we can expect most of them to be less satisfied. In another study, adolescent mothers had greater satisfaction in the maternal role than adult mothers when their babies were 1 and 4 months old, but the satisfaction of the adolescent

mothers began to decline after four months while the satisfaction of the adult mothers increased (Mercer et al., 1984).

Evidence of age differences in the effectiveness of intervention programs at improving maternal self-appraisals. In her review of self-representations, Harter stated that in regard to the self, "adolescence is a time when fluctuations appear to be the most flagrant" (1998, p. 588). This suggests that the self-evaluations of adolescent mothers may be more amenable to change through an intervention program than are the self-evaluations of adult mothers. No studies were found that make such a comparison, but there is tentative evidence that this supposition might be true for global self-esteem. As was discussed above, Cedar and Levant (1990) found little effect of parent education on global self-esteem, but programs for adolescent mothers have identified significant increases in global self-esteem (Dunst et al., 1986; Emmons & Nystul, 1994). However, the Self-Esteem: A Family Affair Program revealed a program-related increase in global self-esteem for a group of parents at-risk for abuse (Bredehoft, 1990), but not for a highly educated, high-socioeconomic group of parents. These results suggest that age differences may be related to the risk levels of adolescent parents rather than the malleability of self-evaluations during the adolescent stage of development.

The tentative evidence that exists for improvement of maternal satisfaction hints at an opposite relation between age and program effectiveness. An analysis of three school-based programs for adolescent mothers found that although the programs led to significant changes in knowledge of child development, they did not significantly increase maternal satisfaction (Roosa, 1984). For an adult sample, Sheeber and Johnson (1994) reported an increase in satisfaction with parent-child relationships. As these

programs were very different, no conclusions can be drawn from this tentative evidence, but clearly the issue should be explored further.

As regards the domain-specific construct of parental self-efficacy, program evaluations have found increases for both adolescent (Dickinson & Cudabeck, 1992; Schinke, Barth, Gilchrist, & Maxwell, 1986) and adult parents (Barber, 1992; Sheeber & Johnson, 1994). As with global self-esteem, no studies were found that compare age-related differences in effectiveness of programs at increasing maternal self-efficacy.

Maternal self-appraisals and program effectiveness. In this study, maternal self-efficacy is considered as both an independent and dependent variable. According to Bandura's theory, those with higher self-efficacy in a domain would be more persistent at trying new techniques learned in intervention and would therefore be more likely to show improvements. This hypothesis was supported in a study involving teachers (Fritz, Miller-Heyl, Kreutzer, & MacPhee, 1995), but the opposite was found for parenting intervention programs. Those who had lower initial levels of parental efficacy made the greatest improvements (Miller-Heyl, MacPhee, & Fritz, 1998). Perhaps when an intervention program is delivered in an appropriate way, it can benefit participants independent of their initial levels of self-efficacy. Those who begin with lower levels of parental self-efficacy are likely to be low on other parenting measures and would therefore have the most to gain which allows them to experience greater gains from program involvement.

To summarize this section, although there is a relation between global self-esteem and maternal self-appraisals, the latter are a more strongly related to parenting behaviors for most mothers. Due to this fact and because maternal self-appraisals are more easily

changed than global self-esteem, intervention efforts are more efficiently spent on maternal self-appraisals. Furthermore, evidence exists of age differences in (a) the relation between maternal self-perceptions and parenting practices, (b) levels of maternal self-perceptions, and (c) the ability of programs to change maternal self-perceptions. A final line of theory and research indicates a possible relation between maternal self-perceptions and parenting intervention effectiveness. These points combine to identify a need for further investigation into age differences in the determinants of intervention effectiveness at improving maternal self-perceptions.

Locus of Control

A third psychological resource related to parenting in Belsky's model is locus of control (Belsky & Vondra, 1989). Research has demonstrated a positive link between an internal locus of control and parenting beliefs and behaviors (de Cubas & Field, 1984; Galejs & Pease, 1986). Also, there is evidence of age differences in the locus of control of mothers as well as in the meaning of locus of control in relation to parenting (de Cubas & Field, 1984; Stevens, 1988). Furthermore, a link between an external locus of control and adolescent child-bearing (Morgan, Chapar, & Fisher, 1995; Plotnick, 1992) and evidence of a relation between locus of control and parenting intervention effectiveness (Brewer, Tollefson, & Fine, 1981; Maisto & German, 1981) suggest that this variable should be examined in relation to age differences in responsiveness to a parenting intervention program.

The relation of locus of control to parenting. Parenting practices and beliefs have been linked to locus of control in many studies. De Cubas and Field (1984) found that mothers with an external locus of control use more demonstration and less verbal

communication with their babies, and identified a relation between internal locus of control and parents' beliefs that they can affect the behavior of their children. Galejs and Pease (1986) identified some interesting relations between locus of control and parenting beliefs and behaviors. Whereas mothers with an internal locus of control emphasize interaction variables, such as affection and verbal interaction, as behaviors of the ideal parent, mothers with an external locus of control believe that ideal parents provide an environment that will afford opportunities for growth such as good nutrition and educational games and toys. In addition, mothers with an internal locus of control were more likely to report that they behaved similarly to their ideal parent than did those with a more external locus of control.

Age differences in locus of control. Many studies have been accomplished to determine if there is an age-related increase or decrease in the internality of locus of control. Findings are mixed in these studies, which Weisz and Stipek (1982) attribute to differences in the various scales used and what the scales are actually measuring. Another shortfall in the work done in this area is that studies do not look at developmental change during adolescence and early adulthood, but tend to focus instead on changes experienced by children and early adolescents (Milgram & Milgram, 1975; Pawlicki, 1974) or treat late adolescence through middle adulthood as a single group (Gatz & Karel, 1993; Lumpkin, 1986). However, there is evidence from a study that examined low-income mothers that adolescent mothers have a more external locus of control than do adult mothers (de Cubas & Field, 1984). In another study conducted by Stevens (1988), the locus of control for adult and adolescent mothers was not compared, but a difference was identified in the relation between locus of control and parenting

practices as measured by the HOME inventory in a sample of low-income mothers with similar levels of education. While an internal locus of control was predictive of parenting behavior for the Black adult mothers ($R^2_{\Delta}=.21$) and White adult mothers ($R^2_{\Delta}=.11$), no such relation existed for the Black adolescent mothers ($R^2_{\Delta}=.01$). Unfortunately, there were no White adolescent mothers in this study. In addition to differences between adolescents and adults, there is strong evidence, as discussed below, that those adolescent women who bear and raise children tend to have a more external locus of control than those adolescents who avoid pregnancy or resolve it through abortion.

Locus of control as a factor in adolescent child-bearing. Many studies have connected adolescent pregnancy and child-bearing with an external locus of control. In Plotnick's study (1992), internal locus of control was negatively related to becoming pregnant and positively related to resolution through abortion, and in Plotnick and Butler's (1991) analysis of the National Longitudinal Survey of Youth, girls with a strong internal locus of control were less likely to have a nonmarital birth. There is also evidence that of the adolescent girls who are sexually active, those who become pregnant have a higher belief in powerful others than do sexually active girls that do not become pregnant (Morgan et al., 1995). This trend is further supported by the work of Thompson (1984) who found adolescent mothers of children 3 months to 2 years to have a high external locus of control as compared to adolescents without children.

Maternal locus of control and intervention effectiveness. Allen and her colleagues (1984) suggested that an external locus of control might decrease the effectiveness of an intervention program because those with an external locus of control

lack confidence in their ability to influence the development of their children. This idea was supported by a study of an intervention program that was conducted by Maisto and German (1981) in which the development of infants whose mothers had an internal locus of control was greater at the follow-up than the development of the infants of mothers who had an external locus of control. In another study, however, locus of control had no relation to the effectiveness of a program meant to increase mothers' abilities to teach cognitive skills to their preschool children (Coleman, Ganong, & Brown, 1981).

The work of Brewer and his colleagues (1981) suggests that the effectiveness of parent training programs is related to whether the mode of presentation is matched to the parents' locus of control. They found that parents with an internal locus of control benefited more if information was presented through discussion and active participation but those with an external locus of control benefited more from a presentation format that included didactic instruction and modeling of behaviors.

In summary, an internal locus of control has been demonstrated to be related to positive parenting practices, but this relation may be different for adolescent mothers than it is for adult mothers. Also, there is evidence of developmental differences in locus of control as well as differences in the locus of control of adolescent and adult mothers as and between adolescent mothers and other adolescent women. These findings in combination with research that suggests a relation between locus of control and the effectiveness of parenting intervention indicate the need for an age-sensitive exploration of the relation between locus of control and program effectiveness.

Social Support

Three of the psychological resources in Belsky's model, maturity, self-esteem, and locus of control, have been discussed. Social support, one of the contextual influences on parenting he noted, will now be addressed. A large body of research documents the benefits of social support for parenting among adults (see Belsky & Vondra, 1989 for a review) and many studies find a similar relation for adolescent parenting (Furstenberg & Crawford, 1978; Giblin, Poland, & Sachs, 1987). One of the benefits of social support for both adolescent and adult mothers is the enhancement of mothers' self-evaluations. However, a substantial collection of research identifies age differences in social support and indicates that social support is not always beneficial for adolescent mothers (Klein & Cordell, 1987; Unger & Wandersman, 1985). Wahler and his colleagues (Dumas & Wahler, 1983; Wahler, 1980; Wahler & Afton, 1980) have exposed a link between social support and the effectiveness of intervention programs that makes these age differences in social support and its effects relevant to the present study.

The relation among social support, parenting practices, and maternal self-appraisals. The assertion in Belsky's model that social support is a determinant of parenting is based on a large body of research that identifies social support primarily as a benefit for those who are involved in child rearing (for reviews see Belsky, 1984; Belsky & Vondra, 1989). One of the proposed pathways between social support and parenting practices is through the improvement of maternal self-appraisals. Cutrona and Troutman's work (1986) indicates that social support helps to prevent postpartum depression through its mediation of self-efficacy, thereby reducing the negative maternal behaviors associated with depression. Also, perceived family support and support from

family, friends, and pediatricians has been positively associated with maternal satisfaction (MacPhee et al., 1986; Schilmoeller et al., 1991).

Evidence suggests a link between social support and the global self-esteem and satisfaction of adolescent mothers. Total social support, support from the adolescent's mother, and from the adolescent's family have been positively related to global self-esteem for pregnant and parenting adolescents (Giblin et al., 1987; Samuels et al., 1994; Unger & Wandersman, 1985). Koniak-Griffin (1988) found a relation between social support and global self-esteem when self-esteem was measured by the Home-Parent scale of the Coopersmith Self-Esteem Inventory, but not the General Self or Social Self scales or the total score of this inventory. In addition, perceived family support is positively associated with parental satisfaction for adolescent mothers (Schilmoeller et al., 1991).

Although social support provides some benefits for the self-evaluations of adolescent mothers, it can have negative consequences for their sense of maternal self-efficacy. Cochran and Brassard (1979) found that social support could decrease adolescent mothers' confidence when being told how to raise their children creates conflict or confusion and causes them to question their parenting abilities. In a more recent study of unmarried adolescent mothers who lived with their parents, a broader network was correlated with increased anxiety about infant care, more resentment of parenting, and fewer ideas about infant stimulation activities (Klein & Cordell, 1987).

The density of adolescent mothers' networks may be one of the determinants of the network's consequences for their confidence and satisfaction. In Unger and Wandersman's (1985) study, adolescent mothers with support networks that consisted of a large number of relatives living nearby had better home environments but were less

satisfied with their lives and were more anxious. In addition, too much support from the adolescent's mother had negative effects. Support perceived as intrusive, demanding, or competitive can decrease the mother's sense of competence. Another finding in this study was that living with extended family had a negative effect on mother/infant interactions if the presence of additional children reduced the amount of time the adolescents spent with their own child. Similarly, Dunst et al. (1986) found high self-esteem to be related to less dense social support networks for adolescent mothers.

Relationship to the baby's father or another significant male. In addition to social support, Belsky discussed the marital relationship as a contextual source of support or stress for parenting (Belsky, 1984). As a type of social support, the marital relationship may provide benefits to parenting through the enhancement of parental self-evaluations. Greater marital harmony is associated with greater confidence in the ability to cope with the issues of parenting and a greater sense of control over both child and self for adult parents (Frank, Hole, Jacobson, Justkowski, & Huyck, 1986).

Because an adolescent mother is less likely than an adult to be married to or living with the father of their baby, it is necessary to broaden the discussion of the "marital relationship" to include the baby's father or a boyfriend. Research identifies benefits of this relationship for adolescent mothers' self-evaluations. Samuels et al. (1994) reported that the self-esteem of new adolescent mothers was related to the amount of contact they had with the baby's father, and Shapiro and Mangelsdorf (1994) found support from the baby's father to be positively related to self-esteem and maternal sense of efficacy for adolescent mothers. Marriage also relates to greater role satisfaction, less

anxiety in infant care, and less resentment of parenting for adolescent mothers (Klein & Cordell, 1987).

These benefits to adolescent mothers' self-evaluations, however, are not necessarily converted into improved maternal behaviors. Although support from the baby's father was positively related to maternal self-appraisals in the study by Shapiro and Mangelsdorf (1994), it was negatively correlated with maternal behavior. Likewise, Crockenburg (1987) did not detect any relations between marital status and the maternal behaviors she measured. In addition, Giblin et al. (1987) discovered a negative relation between the quality of adolescent mothers' relationship with the father of their baby and attendance at their school and job. Perhaps the relation between maternal self-appraisals and parenting practices are not as strong for adolescent mothers as they are for adults because of the identity issues the adolescents are struggling with.

Although the father's presence may not always have positive effects for the behavior of the mother, his presence is beneficial to the development of his child. Some of these effects of involvement with the child's father last into the school years for children of adolescents. More contact with the father or a father figure is associated with more reading and enrichment activities for children 6 to 7 years of age, and children whose mothers are married have higher scholastic aptitudes than children of single mothers (Barratt, 1991).

Age differences in social support received. Adolescent mothers are at risk for receiving lower levels of support than adult mothers, regardless of their ethnicity (Culp et al., 1988; Reis, 1989). Adult mothers also perceive their support systems as more supportive than do adolescent mothers (Schilmoeller et al., 1991). Additional age

differences identified in the literature are that the support received by adolescent mothers in caring for their infants consists of fewer adults and more teenagers, and that they use their child care network more frequently than adults (Garcia Coll et al., 1987).

Adolescent parenting may draw the adolescent back into the family and disturb peer relationships at a time when such relationships are developmentally important (Codega, Pasley, & Kreutzer, 1990). However, increased support from the family doesn't fulfill all of the adolescent's needs. Early motherhood tends to decrease the amount of social contact with friends (Becerra & de Anda, 1984). Mercer (1986a) found adult mothers are more likely to have a friend visit their house or to go on a picnic with a friend. These differences are meaningful in light of evidence that relatives are the primary source of interference in child-rearing as well as emotional/personal concerns for adolescent mothers, and the level of interference from family members is significantly greater than the level of interference from friends (Richardson, Barbour, & Bubenzer, 1991). The addition of the relatives of the baby's father also does not replace the loss of interactions with friends; adolescent mothers report more interference from in-laws than do adult mothers (Mercer et al., 1984)

Age differences in the consequences of social support. Whereas social support is correlated with adult maternal behavior in many studies, in a group of adolescent mothers, support from family did not predict maternal behavior that included sensitivity, expressiveness, positive and negative regard, and facility in caretaking (Shapiro & Mangelsdorf, 1994). Furthermore, an interesting age difference in the effect of social support was found within this group of adolescent mothers. For younger adolescents, support from family was positively associated with their capacity to interpret their baby's

emotions, but this association was negative for older adolescent mothers. Another study found that Latina adolescent mothers displayed less sensitivity during unstructured play if they reported greater overall support, perceived their mothers as available to provide extensive support, or were more satisfied with their childcare support (Contreras, Mangelsdorf, Rhodes, Diener, & Brunson, 1997). These age-related differences in the consequences of social support as well in the differences in the social support received may result in a differential effect on the effectiveness of parenting intervention for adolescent and adult mothers.

Social support and intervention effectiveness. Wahler and his colleagues (Dumas & Wahler, 1983; Wahler, 1980; Wahler & Afton, 1980) provided strong evidence that the structure of mothers' social support networks can have consequences for the effectiveness of intervention. In his efforts to identify the determinants of how well parent training reduced child oppositional behaviors, Wahler identified a pattern of social interactions that he labeled insular. Insular mothers are those who have few daily interactions outside of the family and helping agencies, and who label many of their interactions as neutral or negative. Dumas and Wahler (1983) developed and tested a model in which insularity and SES predicted 49% of the variance of treatment outcome and correctly classified 82% of the families as successful or unsuccessful. Insularity was negatively related to success while the relation was positive for SES. When SES was held constant, insularity accounted for an additional 16% to 20% of the variance, whereas SES only accounted for an additional 7% to 9% of the variance when insularity was held constant. The criteria used for insularity in this study were (1) that the mother reported at least twice as many daily contacts with family members and/or helping

agency representatives, or (2) that at least a third of all of their daily contacts were reported as neutral or negative. In a similar study, Dadds and McHugh (1992) found the level of perceived social support from friends to predict whether a family was responsive to a behavioral intervention.

To sum up the research related to social support, social support has been positively related to parenting practices for both adult and adolescent mothers, but some negative effects of social support on the maternal self-appraisals (reduced confidence, increased anxiety) and parenting practices (less sensitivity) of adolescent mothers have been identified. Moreover, age differences in the type (less interaction with friends) and quality (less supportive) of social support have been identified, that may result in differential effects of social support on parenting intervention effectiveness.

Ethnicity

Differences in the culture and beliefs of various ethnic groups could be interpreted as contextual determinants of parenting practices as described in Belsky's model, and many cultural differences in family structures, values, and parenting practices have been identified in the literature. The three ethnic groups that are examined in the present study include Hispanics, Native Americans, and Anglos. There is a large range of diversity in these groups, with Hispanic Americans coming from all over Latin America; the three largest groups come from Mexico (53%), Puerto Rico (12%) and Cuba (5%) (Nicholau & Ramos, 1990). The fact that there are 400 distinct tribal groups in the USA with diverse cultures, languages, and lifestyles (Garcia Coll, Meyer, & Brillon, 1995) suggests an even greater diversity among this group. Nonetheless, it is

possible to make generalizations about their parenting practices, values, and family structures.

The relation of ethnicity to parenting. Although there are many similarities in the parenting beliefs and practices of Hispanic, Native American, and Anglo parents (Gfellner, 1990), some differences have also been identified. MacPhee and his colleagues (1996) identified ethnic differences in parenting in a low-income sample with high levels of risk. Native Americans were less satisfied with parenting, used less harsh punishment, and were less likely to encourage autonomy than both Hispanic and Anglo parents. Anglo parents used more rational guidance than did Hispanic and Native American parents, and Hispanic parents reported the greatest use of harsh punishment. Following is a discussion of Hispanic parenting practices and beliefs followed by a discussion of the same for Native Americans. Where applicable, comparisons with Anglo parents will be included.

Views about children and how ideal children behave are likely to affect parenting practices. Among Hispanic cultures, children are seen as passive creatures to be shaped by their parents rather than as active beings that have a large influence on their own development (Sanchez-Ayendez, 1988). The ideal child shows his respect by being calm, obedient, and courteous (Garcia Coll et al., 1995), so parents teach children not to show anger, aggression, and other negative feelings (Zuniga, 1992). In a study by Harwood (1992), Puerto Rican mothers were found to value child behaviors that indicated respectfulness and lovingness; a quiet, responsive infant who maintained proximity was seen as the most desirable. In the same study, Anglo mothers valued personal development and self-control of negative impulses in their children, with the

ideal child being active yet related. Older Hispanic children are expected display their interdependence by helping out within the family (Zuniga, 1992). Furthermore, Mexican American parents have been found to put less emphasis on individual responsibility, be more protective, and stress greater control of emotions than Anglo parents (Garcia Coll et al., 1995). Mejia (1983) found that Mexican American parents do not allow children to bring friends home to play as often as Anglos, worry more when their child is not at home, and require their children to play closer to home.

The structure within the family is also likely to have an effect on parenting practices. Traditional Hispanic families are ordered according to gender and age with females deferring to males and the young deferring to those who are older (Kiselica, 1995). However, in more acculturated Hispanic families, the traditional roles of the dominant male and the submissive female have been relaxed (Garcia Coll et al., 1995), and in household affairs, mothers are in charge and make many of the day-to-day decisions (Mirande, 1988). In many Hispanic families, responsibility for child rearing is shared among parents, siblings, extended family, and devoted *compadres* (Garcia Coll et al., 1995).

Unique values and beliefs of Native Americans also affect their parenting practices. For example, Native American parents' respect for children's autonomy translates into a low level of interference by adults into children's activities. Navajo children eat when they are hungry, sleep when they are tired, and aren't likely to ask for permission to do these things (Garcia Coll et al., 1995). Children are provided with age-appropriate tasks in order to build a positive self-concept (Sipes, 1993), and they are taught to be self-sufficient at an earlier age than Anglo children (Joe & Malach, 1992).

Gray and Cosgrove (1985) interviewed professionals from the Blackfeet Indian reservation about parenting practices in their culture that could be misunderstood by those outside their culture. The “belief in offering little or no overt guidance to children” (p. 395) was cited, and an example of a young child being watched by his mother and other women as he burned his hand in a fire was given. Parents watch their children, but they let them learn what they should and should not do on their own. Moreover, reprimanding children is considered ill mannered (Sipes, 1993). Standards of behavior are enforced in many Native American groups through “persuasion, fear, embarrassment, and shame” (Garcia Coll et al., 1995). In a study by McDade (1995) fewer Native Americans than Anglos thought that taking away privileges was an acceptable method of disciplining children. Using an object to spank a child and threatening a child with physical punishment weren’t acceptable to any Native American parents (McDade, 1995).

Native American values and beliefs affect parenting practices in other areas. For instance, Navajo children are taught to act restrained and not to intrude on others’ space, senses, or autonomy. This type of respect is taught to children largely through the parents showing the children respect in a similar way. A result is that mothers talk to their children less, share less mutual gaze, and touch their children less. Chisholm (1996) described the presence of the mother as one of “patient availability” (p. 180) rather than intrusive involvement. In addition, children and adults are given high levels of respect and family and tribal life are held as important (Garcia Coll et al., 1995; Sipes, 1993).

Traditionally, the Native American family is a large, extended unit with many of the child-rearing duties belonging to the grandparents and other family members (Sipes, 1993). Many Native Americans living on reservations closely adhere to the traditional family lifestyle, but those who live in urban areas may live in a nuclear family configuration (Joe & Malach, 1992). In the contemporary Native American family, much of the child rearing may be accomplished by the grandparents while the parents work, or by other family members such as uncles and aunts (Joe & Malach, 1992).

Ethnic differences in social support. MacPhee and his colleagues (1996) identified ethnic differences in the social support networks of Native American, Hispanic, and Anglo parents along with differences in the relations between different social support characteristics and parenting practices. In their study, Anglo parents reported more emotional support from their network members, a greater number of friends, and fewer siblings in their networks than both of the other groups. The domestic partners of Anglo parents met more of their needs than did the partners of Native Americans. Hispanic parents' needs were met more by immediate kin than were Native Americans', but the reverse was true for extended kin. As mentioned, different forms of support seem to have different meanings for the parenting of these three ethnic groups. For example, although support satisfaction predicted satisfaction in the parental role for all three ethnic groups, emotional support was predictive only for the Native Americans and network size was only significant for the Hispanic parents. Risk status was a strong predictor of limit setting for the Hispanic parents, but these variables were not related for the Native Americans. Also, large networks were associated with reduced

use of harsh punishment for the Native Americans while satisfaction with networks was what mattered for Anglo and Hispanic parents.

Ethnic differences have also been identified in the support received by adolescent mothers. Becerra and de Anda (1984) found that more White than Mexican-American adolescent mothers lived alone with their child, and Mexican American girls tended to have fewer friends than Whites (De Anda & Becerra, 1984). Native Americans had more extended kin in their networks while Anglos had more friends in their networks than did Hispanics and Native Americans. De Anda and Becerra also found that White adolescents reported a high level of support from the father of their child during pregnancy, with a sharp drop after the birth of the child. In a later study (De Anda, Becerra, & Fielder, 1988), many of the Mexican-American boyfriends reported being happy about the pregnancy and impending fatherhood, and these couples were more likely to be considering marriage. Most White boyfriends responded negatively to the pregnancy and the relationship was not as likely to continue. It seems that Mexican American adolescent mothers may receive more support from family and the child's father, but White adolescent mothers receive more support in the form of friendship.

A study by Dore and Dumois (1990) compared Hispanic and Black adolescent mothers. Hispanic adolescents reported closer family ties and stronger family support than Black adolescents, but they were also less willing to share their problems with others and thought that sharing would be "just asking for trouble" (p. 99). It is not clear whether this response was in reference to both family members and nonmembers or just family members. If it applies to both, it could mean that Hispanic adolescent mothers are greatly restricted in their utilization of support from both family and friends.

Ethnicity and program effectiveness. Few studies have evaluated the relative effectiveness of parenting intervention programs for various ethnic groups (Forehand & Kotchick, 1996). Most of the studies that examine ethnicity look at only one group or, if they contain a diverse sample, do not compare groups. Two exceptions are those by Strain, Young, and Horowitz (1981) and Holden, Lavigne, and Cameron (1990), both of which examined behaviorally oriented programs aimed at reducing coercive parent-child interactions. The former found no differences related to ethnicity, and the latter found that program success was greater for the participants who were White rather than Hispanic or Black.

It seems logical that parenting intervention programs and the variables that predict their effectiveness would differ across ethnic groups because of differences in parenting beliefs and values. For example, interpersonal relatedness and *familism*, a strong family loyalty and reliance upon family for support, are highly valued within Hispanic families and influence parenting beliefs and practices (Garcia Coll et al., 1995). This fact could hinder the effectiveness of a parenting intervention if the intervention does not have the support of family members and goes against values held by the family. Due to the reliance on family in times of need and crisis, Hispanic families are less likely to use services than are some other groups (Kisselica, 1995) which may also have an affect on their utilization and the effectiveness of parenting intervention programs. There are also differences in the types of help that are desired by different ethnic groups. In McDade's (1995) study of the determinants of minority participation in parent education, Hispanic parents showed a preference for videos and written material.

Among Native Americans, as in Hispanic cultures, age rather than youth is respected, and value is given to the knowledge and wisdom of elders (Sipes, 1993). If a program teaches values different than those held by elders in the Native American community being served, the target parents might not accept these values. Joe and Malach (1992) asserted that Native Americans believe in accepting events rather than trying to change them. Furthermore, Gfellner's study (1990) found that Native Americans' actual parenting practices differ little from their ideal parenting practices, while these differ greatly for Whites. Perhaps Native Americans are more accepting of their current relationships with their children and their own current behaviors and are therefore not as driven to make changes. Of further relevance is the finding of McDade (1995) that only 44 % of Native Americans agreed that parents should not be embarrassed to ask for help while over 80 % of all other ethnic groups agreed with that statement.

In sum, many ethnic differences in parenting beliefs and practices have been identified. In addition, there are differences in the social support received by different ethnic groups as well as differences in the meanings various aspects of social support have for parenting practices. Although there are few studies that have identified differences in program effectiveness related to ethnicity, the evidence presented points to the possibility that they exist.

Risk Status and Intervention Effectiveness

Many parenting programs have been found to have greater effectiveness with parents who are considered more at-risk. Cudaback, Dickinson, and Wiggins (1990) evaluated the effectiveness of programs that consisted of monthly mailings of

information booklets to parents according to their child's age. The greatest effects were found for those parents with risk factors such as being younger, single, members of a minority, and having the lowest levels of education or income. Baskin et al. (1987) reported that it was more difficult to involve the younger mothers in their intervention, but when they did participate, they demonstrated the greatest level of program-related gains. Similarly, in Barth and his colleagues' (1985) study of adolescent mothers, there was no significant difference between the treatment and control groups in well-being and parenting readiness at posttest until the participants were divided into two groups based on the favorability of the participants' pretest scores. When sample was divided, an increase in well-being and parenting readiness was found for the experimental group with less favorable pretest scores. These results are analogous to those found by Bredehoft (1990, 1996): no significant increase in self-esteem was detected in a highly educated, high-socioeconomic group of parents, but an increase was found when the program was used with an at-risk population. There is also evidence that intervention programs can level the field for those who are considered at-risk compared to those who are not. In Hillier and Slade's (1989) study, pretest knowledge levels were associated with risk factors such as age, social class, and education level; after antenatal classes, this association no longer appeared. It seems logical that in these studies, parents who had further to go more easily obtained larger improvements.

In contrast to these findings, low risk levels are associated with program success in evaluations of behaviorally oriented parent-training programs for parents of children with behavioral problems. Within this body of research, program success has been positively associated with (1) high parental education levels (Clark & Baker, 1983;

Dumas & Albin 1986;), (2) the presence of two parents in the home (Dumas & Albin 1986; Webster-Stratton, 1985), (3) the parents being older (Clark & Baker, 1983), and (4) higher socioeconomic status (Holden et al., 1990). These factors have not been systematically studied within other types of parent education programs. However, in the meta-analysis of Gordon's Parent Effectiveness Training (Cedar & Levant, 1990), no differences in effectiveness were found that related to group member's typical marital status or average age.

Within a behaviorally oriented program, differences in program effectiveness related to socioeconomic status have been found for different types of program delivery. Knapp and Deluty (1989) divided the parents in their study into two groups. One group used reading and discussion only and the other used role-play in addition to reading and discussion. Among lower SES mothers, those who were in the group that included role-play benefited but the reading and discussion only parents did not. No program delivery differences were found for the middle-SES group, who benefited more than the lower-SES mothers as a whole. Allen, Affleck, McGrade and McQueeney (1984) suggested that SES-related differences in the effectiveness of parenting intervention programs may be due to the fact that these programs typically espouse behaviors that are more foreign to a parent with a lower socioeconomic status than they are to a middle-class parent. A greater level of change is required by the lower SES parent, which makes the required change less likely.

Age as a Moderator of Parenting Intervention Effectiveness

This review of literature has demonstrated that maturity, maternal self-appraisals, locus of control, social support, and ethnicity can all affect the success of parenting

intervention programs. Because each of these determinants of parenting have also been shown to differ in various ways for adolescent versus adult mothers, it is possible that age acts as a moderator of the factors that influence parenting program effectiveness. This supposition will be examined using existing data from a comprehensive prevention program entitled DARE To Be You (DTBY).

Specific Questions and Hypotheses

Question: Is DTBY differentially effective at improving maternal self-appraisals and improving parenting practices for adolescent versus adult mothers?

Hypothesis 1a: Adolescent mothers experience a greater program-related decrease in the use of harsh punishment than do adult mothers.

Hypothesis 1b: They also experience a greater increase in the following variables: (a) confidence in the maternal role, (b) maternal satisfaction, (c) positive attitude toward the maternal role, (d) limit setting, (e) encouragement of autonomy, (f) communication, (g) use of rational guidance, and (h) use of effective discipline. Those program participants who begin at a disadvantage have the most to gain, which allows them to experience greater gains from program involvement (Barth et al., 1985; Cudaback et al., 1990; Fritz & MacPhee, 1991; Hillier & Slade, 1989). Adolescent mothers have been found to have less optimal behaviors in each of these areas so it is expected that they will experience greater increases.

Question: What factors predict program effectiveness for adolescent and adult mothers, and do these factors differ for the two age groups?

Hypothesis 2: Maternal sense of competence, locus of control, and social support moderate the effectiveness of the DTBY program as measured by change in scores for maternal sense of competence.

2a. The initial level of self-efficacy is negatively related to program effectiveness (Barth et al., 1985; Cudaback et al., 1990; Fritz & MacPhee, 1991; Hillier & Slade, 1989). This effect will be less strong within the adolescent group (Fuller, 1987; Kemp et al., 1990).

2b. Within each group, an internal locus of control is positively associated with program effectiveness. Those mothers who believe that they can affect their child's development but realize they are lacking in knowledge and skills will learn the most and therefore experience the greatest increase in their maternal sense of competence (Harris & Nathan, 1973; Maisto & German, 1981).

2c. A greater amount of social support received from friends than family as well as satisfaction and quality of support received predicts larger improvements in maternal sense of competence (Dumas & Wahler, 1983; Wahler, 1980; Wahler & Afton, 1980; Dadds & McHugh, 1992), and this effect is stronger for adolescent mothers.

Hypothesis 3: Social support, marital status and ethnicity moderate the effectiveness of the DTBY program as measured by the change in scores for parenting practices.

3a. Cultural variations in child-rearing values are expected to result in differential effectiveness of various aspects of the DTBY program.

3b. Social support network size affects program effectiveness. Specifically, very large social support networks that consist of many family members, and very small

networks, are associated with smaller improvements in parenting practices (Dumas & Wahler, 1983; Wahler, 1980; Wahler & Afton, 1980). These effects will be stronger for adolescent mothers because they tend to view their relationships with support network members as less supportive (Schilmoeller et al., 1991), and too much help from family members can have negative effects for them (Unger & Wandersman, 1985).

3c. Marital status is positively related to program effectiveness (Dumas & Albin, 1986; Webster-Stratton, 1985); this effect is stronger for the adult mothers because adolescent mothers' relationships with men can have negative effects on their maternal behaviors (Giblin et al., 1987; Shapiro & Mangelsdorf, 1994) and are a common cause of stress (Crockenburg 1987).

3d. Due to ethnic differences in the social support received by adolescents, it is proposed that program effectiveness is more strongly related to social support and marital status for Hispanic adolescents than for Anglo adolescents. These relations will also be explored for the Native Americans, but not enough information is available to make directional predictions.

Question: Does the strength of the relation between maternal self-appraisals and parenting practices increase due to the DTBY intervention program?

Hypothesis 4: The relation between high maternal self-appraisals and positive parenting practices prior to intervention is stronger for adult mothers than for adolescent mothers (Fuller, 1987; Kemp et al., 1990).

Hypothesis 5: The correlation between high maternal self-appraisals and positive parenting practices increases for both age groups after exposure to the DTBY intervention (Conrad et al., 1992), and this increase is greater for adolescent mothers.

CHAPTER II

Method

The DARE To Be You program was the intervention used to determine its differential effectiveness at increasing maternal self-appraisals and improving parenting practices for adolescent versus adult mothers. The factors of self-efficacy, locus of control, marital status, and social support were also examined for differential predictiveness of program success as determined by changes in parental self-appraisals and parenting practices for the two age groups. In addition, the relation between parental self-appraisals and parenting practices was examined for age differences and to determine whether the DTBY intervention differentially strengthens this relation for the two groups.

Description of the DARE To Be You Program

The DTBY project is a comprehensive prevention program for high-risk children and their parents or the extended family members who are primarily responsible for their care. The goal of DTBY is to provide children who are at risk for later alcohol and substance abuse with skills and an environment that will provide resilience against these and related problems later in their lives. The target children are between the ages of 2 and 5 at the time of entrance into the program. As a result of multicultural focus groups, DTBY has been adapted for different cultural values and needs, and culturally appropriate activities and strategies have been added to the DTBY manual.

The resiliency factors this program is designed to provide children include: (a) increased beliefs in their own abilities; (b) improved behavioral functioning; (c) a more internal locus of control; (d) improved social, problem-solving, and reasoning skills; and (e) bicultural competence. Within the home, DTBY intends to increase the children's sense of being nurtured and protected, and to improve parental practices by increasing the parents' sense of personal and parenting efficacy, self-esteem, and internal locus of control. DTBY also seeks to improve the parents' abilities to parent effectively by (a) providing parents with discipline options and modifying their attributional reasoning; (b) developing parents' skills for social interactions, reasoning, and problem solving; and (c) increasing parents' social support.

DTBY targets the at-risk children through four paths: directly to the children, through their parents, through schools, and through key community members. Of specific interest to this study, parents and children simultaneously yet separately attend 12 weekly two-hour sessions with 20-25 adults per class. In addition, classes are provided for the siblings of the target child. Of the 24 hours of intervention, the parents receive 8 hours of training and exercises focused on raising their parental efficacy and satisfaction, and educating them about building the self-esteem of their children. This was accomplished through educational activities and exercises designed to provide concrete models for learning as well as an understanding of child development theory. Approximately 15 minutes of each session was reserved for an activity involving both the adults and their children. The remaining portions of the curriculum were designed to increase the parents' stress management skills, sense of responsibility, decision making and reasoning abilities, social skills, positive discipline alternatives, and knowledge of

child development. In addition to the 12-week course, at least 8 hours of reinforcing workshops were held during the year following the initial classes, and support events were held monthly at each site. All of the program facilitators were known and respected in their local areas, and most of the facilitators for the Native American and Anglo participants were from those ethnic groups.

Participants

The participants in this study were a subset of those in the DTBY program. The subset included only mothers and was divided into two groups, adolescents and adults, as described below. The mothers in the study had a target child between 2 and 5 years old and were from ethnically and ecologically diverse backgrounds. They included Native Americans from the Navajo reservation near Shiprock, New Mexico, and the Towaoc Ute Mountain Ute reservation in the Four Corners area; Hispanic and Anglo Americans from the urban areas of Colorado Springs and Pueblo; and Hispanic, Anglo, and Native Americans from rural Montezuma and San Luis Counties of Colorado including the city of Cortez. The Hispanic participants from the San Luis Valley were primarily of Mexican descent, and their families have been in the United States for many generations.

Most families in the DTBY project had one or more of the following risk factors: a history of child abuse, parental school failure, economic disadvantage, mental health problems, long-term health problems, family history of alcohol/drug use, adolescent pregnancy, social isolation, being a foster parent, and a family history of violence or delinquency. In addition, residing in a community at risk (defined as a community in which over 80% of families have documented substance abuse problems) was considered a risk factor. The intended level of risk factors in the DTBY participant families was

5-10% with 0-1 risk factor, 80-90% with 2-7 risk factors, and 5-10% with over 8 risk factors.

Group Selection Criteria

The selection of the subset of participants from the DTBY data was conducted using specific criteria. Inclusion in the adolescent and adult group was determined using the mother's age at the birth of her first child as well as her current age. Specifically, mothers in the adolescent group first gave birth when they were younger than 20, and mothers in the adult group first gave birth when they were over 23. Those who were 20 to 23 were left out in order to create a clearer distinction between adolescent and adult mothers. The children of mothers in the program ranged in age from 2 to 5 years. Therefore, a mother who had her first child at 18 years of age could have a current age of 24 upon entry into the program. To rid the adolescent mothers group of these older mothers, those who were older than 23 when they entered the DTBY program were excluded from the adolescent mothers group.

Description of the Sample

The adolescent experimental and control groups consisted of 62 and 43 mothers, respectively, and the adult groups consisted of 128 and 74 mothers. Some of the experimental group participants did not complete the DTBY program leaving 47 adolescent and 113 adult mothers in the experimental group who completed the posttest. The marital status and ethnicity of the participants are displayed in Tables 1 and 2, respectively. Other sociodemographic data and the results of analyses of variance (ANOVAs) that were performed to test for significant differences between the two age

Table 1

Marital Status of the Participants by Age

<u>Marital Status</u>	<u>Adolescent</u>		<u>Adult</u>	
	<u>Experimental</u>	<u>Control</u>	<u>Experimental</u>	<u>Control</u>
Single	11 (18)	13 (30)	17 (13)	11 (15)
Married	25 (40)	13 (30)	71 (55)	41 (56)
Living Together	14 (23)	8 (19)	16 (13)	5 (7)
Remarried	1 (2)	0 (0)	1 (1)	2 (3)
Separated	6 (10)	5 (12)	7 (5)	7 (10)
Divorced	5 (8)	3 (7)	14 (11)	7 (10)
Widowed	0 (0)	1 (2)	2 (2)	0 (0)
Total	62	43	128	73

Note. Percentages are displayed in parentheses.

Table 2

Ethnicity of Participants by Age

<u>Ethnicity</u>	<u>Adolescent</u>		<u>Adult</u>	
	<u>Experimental</u>	<u>Control</u>	<u>Experimental</u>	<u>Control</u>
Hispanic	12 (20)	16 (37)	19 (15)	7 (10)
Native American	24 (39)	14 (33)	42 (33)	24 (33)
Anglo	23 (38)	11 (26)	64 (50)	39 (54)
African American	2 (3)	1 (2)	2 (2)	1 (1)
Asian American	0 (0)	1 (2)	1 (1)	0 (0)
Other	0 (0)	0 (0)	0 (0)	1 (1)
Total	61	43	128	72

groups as well as between the experimental and control groups are displayed in Table 3. There were significant differences between the two age groups (lower means for the adolescent group) in the mothers' age, mothers' education, fathers' age, family income, number of children, and age of youngest child.

Measures

The variables in this study were measured using questionnaires filled out by the parents either in reference to themselves or to the target child. Adaptations were made where necessary to fit the needs of the populations served; reading levels were measured to be between the 2.5 and 6.5 grade levels.

Independent Variables

The primary independent variable in this study is age, specifically adolescent versus adult as described above. Other independent variables include maternal self-appraisals, locus of control, and social support. Maternal self-appraisals are defined in this study as the mothers' levels of confidence and satisfaction in their role as a mother, and are measured by the Self-Perceptions of the Parental Role and the satisfaction scale of the Parent-Child Relationship Inventory, short form (PCRI). Locus of control is the degree to which people believe that control over the events in their life lies within themselves or in the hands of powerful others or fate, and is evaluated in this study by Levenson's IPC scale. Social support includes the ratio of support network members who are family members to those who are friends, network size, composition, and number of members providing support. The Social Network Questionnaire (SNQ; see Antonucci, 1986) is a hierarchical social map that was used to measure social support. The remaining independent variables are ethnicity, marital status, and education level.

Table 3

Sociodemographic Characteristics by Age and Group

Sociodemographic Variable	Adolescents		Adults		Group Differences	
	Experimental <i>M (SD)</i>	Control <i>M (SD)</i>	Experimental <i>M (SD)</i>	Control <i>M (SD)</i>	Age <i>F</i>	Treatment <i>F</i>
Mother's Age	21.4 (1.4)	21.2 (1.7)	32.9 (5.3)	32.7 (4.7)	556.08 ***	.140
Mother's Education	11.5 (1.5)	11.8 (1.4)	12.4 (1.2)	12.5 (1.3)	23.43 ***	1.35
Mother's Occupation	24.8 (16.5)	25.8 (13.7)	28.7 (13.8)	26.2 (11.3)	1.35	.50
Mother's Hours Worked	23.1 (18.2)	25.5 (17.4)	26.2 (21.2)	26.3 (18.4)	.51	.07
Mother's Age at First Birth	17.5 (1.1)	17.5 (1.2)	26.4 (3.1)	28.2 (5.0)	590.81 ***	9.27 ***
Father's Age	25.4 (4.5)	24.4 (4.4)	35.2 (7.2)	34.9 (7.2)	122.06 ***	.361
Family Income (thousands)	15.2 (9.6)	16.1 (11.9)	21.2 (15.5)	20.8 (12.7)	10.11 ***	.00
Number of Children	1.9 (.7)	1.8 (.90)	2.2 (1.1)	2.0 (1.0)	5.13 *	1.52
Youngest Child's Age	2.6 (1.4)	2.7 (1.5)	3.3 (1.5)	3.4 (1.6)	16.79 ***	.09

* $p < .05$ ** $p < .01$ *** $p < .005$

Parental self-appraisals. The Self-Perceptions of the Parental Role (SPPR), developed by MacPhee and his colleagues (1986), was the primary measure of parental self-appraisals. Although this self-report inventory contains four subscales that measure sense of competence, satisfaction, investment, and integration as they relate to the parental role, only the sense of competence and satisfaction scales was used in this study. The competence measure in this instrument includes six items with a possible score ranging from 6 to 30. Sense of competence is defined as the parent's appraisal of their skills as a parent. Five items were employed to measure satisfaction in the parental role with possible scores ranging from 5 to 25. A low score indicates feelings of regret and resentment in the parental role.

Each item on the SPPR contains two related but contrasting statements such as "Some Parents often can't figure out what their children need or want BUT Other parents seem to have a knack for understanding what their children need or want." Parents choose the statement that best describes them, and then they check one of two boxes labeled "Really True for Me" and "Sort of True for Me" for that statement. The presentation of the two statements provides the appearance that each statement describes half of the population, which helps to minimize responses based on social desirability (MacPhee et al., 1986).

The 21-day retest reliability of SPPR is .86 for the competence component and .88 for the satisfaction component, while the alpha reliabilities are .78 and .80, respectively (MacPhee et al., 1986). Suitable construct validity was established through comparisons to measurements on other questionnaires assessing difficulty of child behavior, harmony in the mother/child relationship, social support, previous child-care

experience, and sensitivity to intervention (MacPhee et al., 1986; Seybold, Fritz, & MacPhee, 1991; Miller-Heyl et al., 1998). A second measure of satisfaction with the parental role is provided by a 10-item subscale of the Parent-Child Relationship Inventory, short form (PCRI, Gerard, 1994), which is described in greater detail below.

Social support. The Social Network Questionnaire (SNQ) developed by Kahn and Antonucci was used to assess the parents' social network size and composition, frequency of contact and closeness, and who fulfills various functions such as providing child care and respect. Participants were asked to place the initials of members of their social support network in one of three concentric circles signifying closeness, which could range from the inner circle indicating that the member is "so close it is hard to imagine life without them" to the outer circle, which means the member is "less close but still important." Participants were then asked to provide three types of information about each member of their network: (1) which of 10 functions that member fulfilled; (2) the relationship of network members to the participant such as mother or friend (identified for up to 15 of the members); and (3) the frequency of contact ranging from daily to about once a year. Two factors were found for the functions served by members (MacPhee et al., 1996): emotional support, which included items that related to respect, reassurance and advice ($\alpha = .84$), and instrumental support, which included three items related to child care and one item identifying members who would provide loans ($\alpha = .73$). Contact frequency had an alpha reliability of $r = .68$ and a one-year stability of $r = .57$.

A measure of social support satisfaction was assessed through six yes/no questions about satisfaction with the number of people who provide types of support such

as child care and understanding. A final question provided a measure of the density of the network by asking how many people in the participant's network know each other. Answer choices range from 1 (none) to 4 (all).

Test-retest reliability was high for the SNQ for a sample of children and adolescents ($r = .69$ to $.91$). The work of Levitt and her colleagues (Levitt, Guacci-Franco, & Levitt, 1993; Levitt, Weber, & Clark, 1986) supports the validity of this instrument by documenting relations between the SNQ and emotional support, and measures of well-being, and by identifying structural changes in adolescents' networks that replicate earlier findings. Levitt has also found the SNQ to be valid for various social classes and ethnic groups, as did MacPhee and his colleagues (1996).

Locus of control. Locus of control was measured using Levenson's (1974) IPC scale, a Likert-type questionnaire that contains three 8-item scales. One scale measures internal locus of control and the other two identify two types of external locus of control: Powerful Others and Chance (a belief that fate or luck play a vital role in determining outcomes). Alpha reliabilities for the Internal, Powerful Others, and Chance scales in the standardization sample were .64, .77, and .78, respectively, while the test-retest reliabilities for a one-week period were .64, .74, and .78 (Levenson, 1974). Levenson (1981) documented support for the validity of her scale that includes moderate correlations between the P and C scales, and minimal correlations between these two scales and the I scale. Similarly, the P and C scales are positively correlated with Rotter's I-E scale while the I scale is negatively correlated with that scale. The correlations between Rotter's scale and the P scale tend to be very low. Validity for the IPC scale is

also supported in that, unlike Rotter's scale, social desirability is very near .00 for all items.

Dependent Variables

The outcome in this study is program effectiveness defined as the magnitude of the changes in scores from pretest to posttest and pretest to one-year follow-up for the following measures: (a) maternal self-appraisals as measured by the SPPR, (b) limit setting, (c) encouragement of autonomy, (d) communication, (e) use of harsh punishment, (f) use of rational guidance, and (g) use of effective discipline.

Parenting practices. Three instruments were used to provide a measure of parenting practices: the Parent-Child Relationship Inventory, a set of questions about how frequently various discipline techniques are used, and a set of vignettes. Three scales from the 55-item Parent Child Relationship Inventory, short form (PCRI, Gerard, 1994) was used to assess parenting practices: *Limit Setting* with 9 items is designed to measure consistent control versus coercion and child defiance, *Autonomy* which consists of 10 items that assess encouragement of independence versus permissiveness and protectiveness, and *Communication*, which consists of 6 items. Alpha reliabilities are high at .80-.88 and 3-month test-retest reliabilities range from .76 to .92 in both DTBY and standardization samples. The validity of this measure has been supported through its sensitivity to the effects of parent education and correlations with measures of self-esteem and parenting practices; it is not correlated with social desirability.

The second measure of parenting practices is a questionnaire developed for the DTBY project to provide information about how frequently the participants used 11 discipline practices such as reasoning, praise, spanking, and yelling or threatening. The

parents were asked how often they used each method, with answer choices ranging from never to often. Concrete examples are given for items that might be misunderstood. An additional item addresses the consistency with which discipline is applied by the parent. Two clusters, *Harsh Punishment* and *Rational Guidance*, were identified through factor analysis of this questionnaire. The cluster of harsh punishment includes criticizing, spanking, and yelling, and has an alpha reliability of .81 and a retest coefficient of .61. The smaller cluster of rational guidance consists of time out, giving choices, reasoning, and praise, and has an alpha reliability of .64. The validity of this measure is supported in that use of harsh punishment is negatively correlated with parental feelings of competence and caregiving experience, and both measures are sensitive to the effects of intervention (Miller-Heyl et al., 1998).

A factor analysis of five of the dependent variables resulted in two factors that were labeled *positive parent-child interactions* consisting of (a) limit setting, (b) communication, and (c) use of harsh punishment (with reverse scoring), and *nurturance* which consisted of (a) encouragement of autonomy, and (b) use of rational guidance. These scales were standardized and combined to produce the positive parent-child relations and nurturance scores that are used in some of the analyses.

A third measure of parenting practices presents six vignettes that describe child behaviors that may be problematic for parents. This set of vignettes was developed based on the work of Rosenberg and Reppucci (1983). Three vignettes concern violations of moral standards or household rules and three describe oppositional child behaviors. Parents are told to pretend that they are the parent in each situation and are asked what they would do or say next in this situation. These responses were then content coded for

21 disciplinary and communication strategies. Each strategy was assigned a weight according to the average of four experts' Q-sorts of how effective the strategy would be in causing long-term, positive changes in the child, with weights ranging from 1 (*Most Harmful or Ineffective*) to 5 (*Most Beneficial or Effective*). An *effective discipline* score was calculated by averaging these weights across the six vignettes. Inter-rater reliability for the effective discipline score is 80%.

Design

This study is a longitudinal experimental design with randomized assignment to the treatment and control groups for one of the three projects. Four independent groups were examined in this study. The two primary groups, adolescent mothers and adult mothers, will each be subdivided into an experimental and control group. Change scores on the various questionnaires from the pretest to posttest and one-year follow-up were used as the dependent variables. The proposed relations among the variables are depicted in Figure 1.

Procedures

Recruitment, Group Assignment, and Incentives

The DTBY program includes an experimental and control group. The families in the DTBY program are referred by local agencies if the identified risk factors are present. At each site, a slightly different network of agencies was used for recruitment, but each site has at least six referral agencies such as Head Start, public health services, and substance abuse programs. After referral, high-risk parents were matched for demographic variables and then randomly assigned to experimental and control families at a ratio of 2:1.

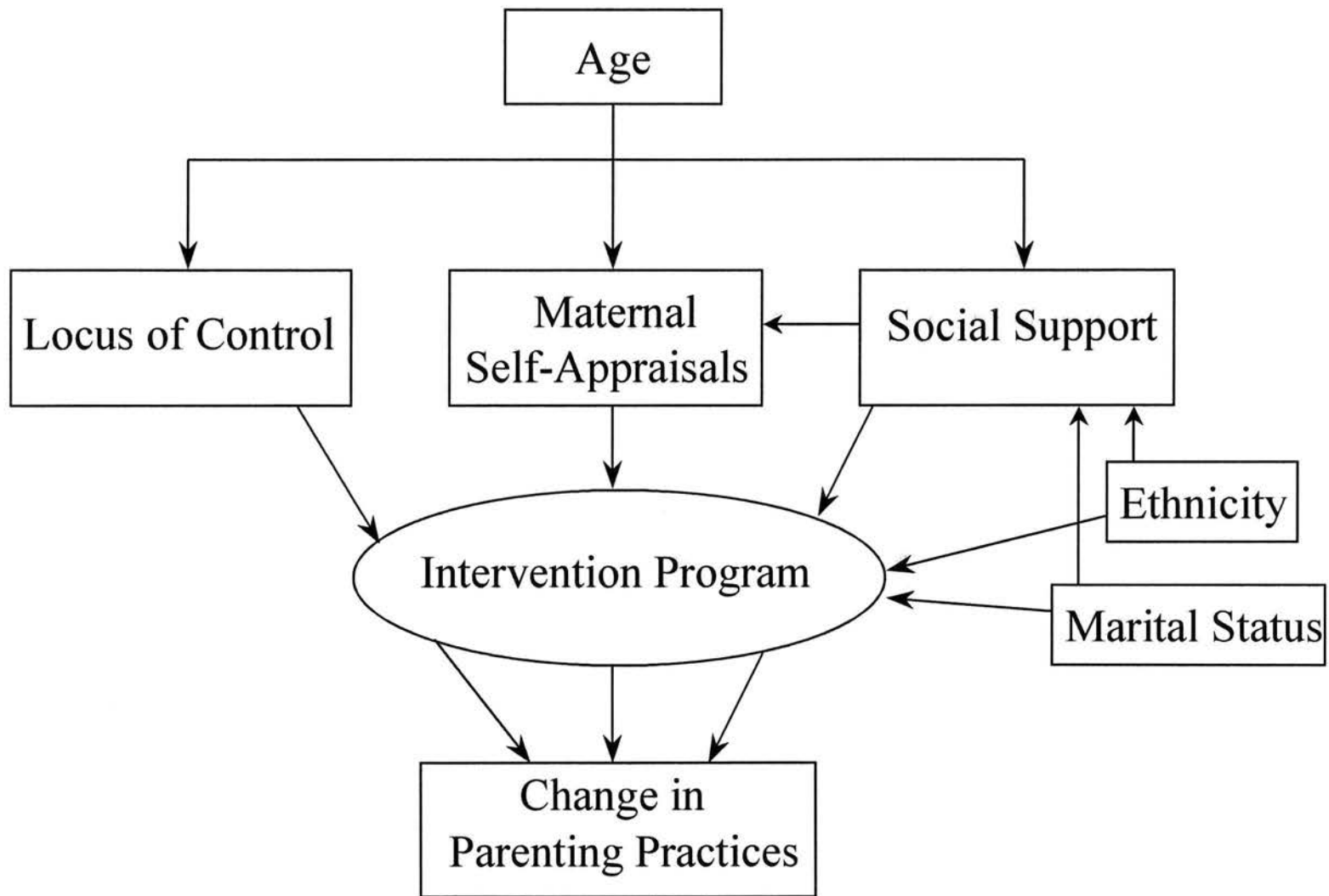


Figure 1. The factors that influence program effectiveness.

Due to the difficulty in retaining high-risk families in a longitudinal study, incentives were offered to both the experimental and control families. Experimental parents received \$200 after completion of the program including both the pre- and posttests. In addition, a meal is provided for attending family members at each session. The control group receives \$20 for completion of each test. Parents who attend the eight hours of reinforcing workshops receive an additional \$50.

Data Collection

Standardized training and an assessment manual were given to the program instructors for administering the questionnaire booklet. The manual included the verbal instructions to be given to the parents and the instructors answered questions during administration. Parents were instructed to answer all questions in the test booklets in relation to the target child, or to themselves where appropriate. The pretest was given to the experimental group on the first day of the program and the control group members were administered the pretest in groups in the DTBY offices with the same directions as those given to the experimental group. Additionally, questionnaires were read aloud by the administrator to ensure understanding by all participants. The one-year follow-up test booklets were administered at reinforcing workshops or support activities for those who attended, and were administered in small groups, during home visits, or through the mail to other experimental parents and the control group one year after completion of the pretest.

CHAPTER III

Results

Differences in Social Support Networks

T-tests were done to identify differences in the social support networks reported by adolescents and adults prior to the intervention. The adolescent mothers reported significantly more contact ($M=1.99$, or an average of once per week) with the members of their social support network than did the adults ($M=2.24$, less than once per week; $t=-3.25$, $p=.001$). When this variable was subdivided into relationships, the adolescent mothers reported significantly more contact with the mothers (including step, in-law, and foster) in their networks ($M=1.58$ for adolescents and $M=1.84$ for adults; $t=-2.03$, $p=.044$), as well as more contact with siblings ($M=1.94$ for adolescents and $M=2.50$ for adults; $t=-3.62$, $p<.001$). There were no significant differences between the two age groups for contact with fathers, significant others, friends, or distant relatives. *T*-tests also failed to reveal age differences in the total size of social support networks, the level of closeness felt with network members, and satisfaction with support.

Differences in the structure of the networks can be seen in Table 4. The number of social support network members whom the participants had contact with at least once per week were collapsed into relationship categories (e.g., mothers, to include step, in-law, and foster mothers). Adolescent mothers had significantly more mothers, fathers, siblings, and distant relatives (aunts, uncles, grandmothers, and grandfathers) in their

Table 4

Age Group Differences in Social Support Network Structure

<u>Relationship Category</u>	Adolescents	Adults	<i>T</i>	<i>p</i>
Mothers (includes step, in-law, foster)	1.04	.70	3.91	.001
Fathers (includes step, in-law, foster)	.69	.48	2.70	.007
Relatives (aunt, uncle, grandmother, grandfather)	.62	.28	2.31	.022
Siblings (includes step, in-law, foster)	1.98	1.33	2.75	.006
Significant others (spouse, boyfriend)	.72	.65	1.02	.307
Friends (includes neighbor, coworker)	1.41	1.49	-.29	.774

Note. Numbers in Adolescents and Adults columns represent the mean number of people reported as contacted at least once per week in each category.

networks. However, there were no significant differences in the number of significant others or friends. There were no significant differences in the *quality of support* provided by members of the support network as measured by the percentage of members who (a) provided the participants reassurance, (b) they could confide in, (c) made them feel respected, or (d) they could talk to when they were upset or depressed. There was a significant difference between the two age groups in whether more friends or family members were contacted each week. In order to calculate this variable, a 1 was entered for those who reported more family members than friends, a -1 for those who reported more friends than family, and a 0 for those who reported an equal number of friends and family. Although the average person in each age group reported having more family members than friends in their network, the adolescent mothers were significantly more likely to report this status than were adults ($M=.60$ vs. $.26$; $t=3.35$, $p=.001$)

In summary, the adolescent mothers reported more contact with the members of their social support network than did the adults, particularly with the mothers and siblings. The adolescent mothers also had a greater number of mothers, fathers, and siblings whom they had contact with at least once per week. A further difference identified was that adolescent mothers were more likely to have a greater number of family members than friends in their networks.

Differences in Parenting Practices and Beliefs

Analyses of covariance were conducted to test for differences in parenting practices and beliefs between the two age groups *prior* to the intervention. Education was entered first as a covariate in each of the ANCOVAs, and two significant age differences were found. Adult mothers encouraged autonomy in their children more than

the adolescent mothers ($M=23.24$ vs. 21.77 ; $F=7.61$, $p=.006$). Also, in the measure that required participants to provide effective discipline solutions for the difficult behavior vignettes, the adolescent mothers had a score of 3.31 while the adult mothers had a more favorable score of 3.82 ($F=17.511$, $p<.001$). The other parenting practices and beliefs variables that were tested and showed no age differences were (a) maternal sense of competence, (b) satisfaction, (c) positive attitude, (d) limit setting, (e) communication, and (f) use of rational guidance. Education was a significant covariate in the equations for sense of competence, satisfaction, autonomy, effective discipline, positive attitude and the use of rational guidance.

Age Differences in Program Effectiveness

The first hypothesis stated that adolescent mothers would be more strongly affected by the DTBY intervention than would the adult mothers. ANOVAs were used to test this hypothesis, and there were no significant differences in the effectiveness of the program between the two age groups for any of the dependent variables. However, evidence of the program's effectiveness was found at posttest in that the use of harsh punishment decreased and maternal sense of competence, positive attitude, limit setting, encouragement of autonomy, use of rational guidance, and scores for effective discipline for the difficult behavior vignettes increased. At follow-up, there was a significant increase for the experimental group for maternal sense of competence, satisfaction, and positive attitude, as well as autonomy, and there was a decrease in the use of harsh punishment. See Tables 5 and 6 for the results of these ANOVAs.

Table 5

Changes in Parenting Measures between Pretest and Posttest with Mother's Education as a Covariate

Parenting Measure	Adolescent		Adult		Time	Age Group x Time
	Pre	Post	Pre	Post	<i>F</i>	<i>F</i>
SPPR Competence	20.2	22.4	20.5	22.2	29.07 ***	.32
SPPR Satisfaction	20.4	19.6	20.6	20.4	2.04	.78
Positive Attitude	35.1	36.2	34.7	35.8	14.15 ***	.00
Limit Setting	22.6	24.0	22.6	24.2	29.32 ***	.08
Communication	19.0	19.0	18.1	18.6	1.70	1.90
Autonomy	21.8	22.2	23.4	23.9	4.21 *	.04
Harsh Punishment	13.8	12.1	13.4	12.2	35.92 ***	.92
Rational Guidance	12.1	12.6	12.1	12.7	13.87 ***	.22
Effective Discipline	3.3	3.9	3.7	4.1	13.67 ***	.39

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 6

Changes in Parenting Measures Between Pretest and Follow-up with Mother's Education as a Covariate

Parenting Measure	Adolescent				Adult				Treat x Time	Age x Treat x Time
	Experimental Pre	1-Year	Control Pre	1-Year	Experimental Pre	1-Year	Control Pre	1-Year	<i>F</i>	<i>F</i>
SPPR Competence	19.7	23.5	20.5	21.6	20.6	23.5	21.8	22.2	6.63*	.12
SPPR Satisfaction	20.4	21.5	20.5	19.4	20.7	21.5	20.9	20.1	7.38**	.33
Positive Attitude	36.0	38.1	35.8	36.5	34.7	36.7	35.6	35.8	4.11*	.10
Limit Setting	22.8	24.3	23.0	24.0	23.0	25.0	23.8	23.8	3.42 [†]	1.42
Communication	19.3	20.0	18.6	19.1	18.0	19.0	19.1	18.7	3.31 [†]	2.27
Autonomy	22.4	23.9	21.2	21.3	23.8	24.7	23.5	23.4	6.66*	.24
Harsh Punishment	14.6	11.4	13.2	12.9	13.7	12.1	12.7	12.6	17.17***	1.91
Rational Guidance	12.7	12.9	11.9	12.2	12.0	12.4	12.3	12.4	.12	.38
Effective Discipline	3.3	3.6	3.2	3.5	3.9	4.1	4.0	3.9	.94	1.18

* $p < .05$ ** $p < .01$ *** $p < .001$ [†] $p < .10$

Factors Predictive of Program Effectiveness for Increasing Maternal Sense of Competence

The second hypothesis predicted that maternal sense of competence, social support, and locus of control would moderate the effectiveness of DTBY at improving maternal self-appraisals. Hierarchical regression analyses, with the sample divided into the two age groups, were employed to test this hypothesis (see Table 7) and provided partial support as discussed below.

Initial Level of Sense of Competence

A negative relation was predicted between the initial level of maternal sense of competence and program effectiveness at increasing maternal sense of competence. The results supported this hypothesis for both age groups at both the posttest and the follow-up. Lower initial competence scores predicted larger improvements at the .001 confidence level in each case. The hypothesis that this effect would be less strong for the adolescent mothers was not supported as the R^2_{Δ} was actually larger for the younger mothers.

Internal Locus of Control

An internal locus of control was associated with an increase in maternal sense of competence for the adolescent mothers but not for the adult mothers. Internal locus of control accounted for 13% of the variance in change scores at posttest and 15% of the variance at follow-up for the adolescent mothers, but it accounted for less than 1% of the variance for the adults.

Table 7

Summary of Hierarchical Regression Analyses for Change in Sense of Competence

Step and Predictor	Adolescents				Adults			
	Pre to Post		Pre to Follow-up		Pre to Post		Pre to Follow-up	
	β	R^2_{Δ}	β	R^2_{Δ}	β	R^2_{Δ}	β	R^2_{Δ}
1. Mother's Education	-.059	.004	-.212	.045	.086	.007	-.241 [†]	.058 [†]
2. Initial Competence Score	-.575***	.323***	-.608**	.369**	-.554***	.268***	-.499***	.215***
3. Internal Locus of Control	.360**	.127**	.407*	.151*	.041	.002	-.052	.003
Adjusted R ²	.411		.493		.255		.238	
	F=10.75***		F=7.80**		F=12.04***		F=7.48***	
	n=42		n=21		n=97		n=62	

* $p < .05$ ** $p < .005$ *** $p < .001$

Social Support

Three different measures of social support were entered into the regression equations to determine the factors that affect change in maternal sense of competence. These three variables included (a) satisfaction with social support, (b) ratio of family members to friends, and (c) quality of support. Satisfaction with social support received, as indicated by a desire to have more members that fulfill particular functions, was originally entered with locus of control as the third step in the regression analysis. Because it was not predictive of change in any of the equations, it was trimmed from the equations.

To examine the role that a greater amount of social support received from friends than family plays in predicting larger improvements, a similar hierarchical regression equation was used that had maternal education and the initial level of maternal sense of competence as the first two steps with the third variable being whether more friends or family members were contacted each week. Although there were age differences in this variable, it was not a significant predictor of program effectiveness in any of the equations. The third social support variable examined was the measure of the quality of social support that is described above. This variable was also entered as step three in the equations and was not a significant predictor of change in maternal sense of competence.

To summarize this section of the results, for both adolescent and adult mothers, those mothers who had a lower sense of competence at pretest experienced the greatest increase in this measure at both posttest and follow-up. Also, an internal locus of control was associated with an increase in maternal sense of competence for the adolescent

mothers but not for the adult mothers. None of the social support measures included in the analysis predicted change.

Factors Predictive of Program Effectiveness for Improving Parenting Measures Scores

Hypothesis three predicted that marital status, ethnicity, and social support moderate the effectiveness of the DTBY program as measured by change scores for parenting practices. Hierarchical regression analyses were also used to test these hypotheses. Regression analyses were performed for the change scores from pretest to posttest and from pretest to follow-up for positive parent-child interactions, nurturance, and effective discipline resulting in six regression equations for each of the two age groups. Education and marital status were not significant predictors in any of the equations, so they were trimmed from the equations to reduce problems associated with small sample size in relation to the number of predictor variables. In each of the regression analyses ethnicity was entered as step one with two sets of dummy variables to represent the three ethnicities: Hispanic, Native American, and Anglo. Because they made up a small percentage of the total, African American and Asian American participants were excluded from this part of the analyses. At step two the number of people in the participants' social support networks who were seen at least weekly was entered. Because there are ethnic differences in the social support received by parents (MacPhee et al., 1996) and in parenting beliefs and practices (Garcia Coll et al, 1995), the interaction of ethnicity and social support network size was entered as step 3. Because few of the regression analyses had significant F values for the equation as a whole, where there were variables that were significant, the ethnic group comparisons that were not significant were dropped from the equation until the whole equation

became significant. For some analyses this included dropping one of the ethnic groups from the analysis and in others two ethnic groups were combined.

Effective Discipline

The results of the analyses for change in the use of effective discipline are included in Table 8. Change in effective discipline for the adolescent mothers was related to social support network size for the Hispanic and Native American participants only. For these two ethnic groups, a larger network was associated with less improvement in effective discipline scores. The interaction was significant at follow-up only for the difference between Anglo and Hispanic participants. At this time, adolescent Anglo mothers benefited more if they had large networks and adolescent Hispanic mothers benefited more if their networks were small. The Native Americans may have dropped out of the equation due to the fact that there were few of them in the follow-up group. For the adult mothers, none of the variables were predictive at posttest of improvement in the use of effective discipline. A trend towards a significant difference emerged at follow-up with the Hispanic and Anglo mothers increasing more than the Native American mothers.

Positive Parent-Child Interactions

None of the variables were predictive of change in parent-child interactions for the adolescent mothers at both posttest and follow-up. For the adult mothers, support network size was positively related to improvement in parent-child interactions at posttest ($\beta=.269$, $p=.008$, $R^2_{\Delta}=.072$). None of the variables predicted improvement for the adult mothers at follow-up.

Table 8

Summary of Hierarchical Regression Analyses for Change in Effective Discipline

Step and Predictor	Adolescents				Adults	
	Pre to Post		Pre to Follow-up		Pre to Follow-up	
	β	R^2_{Δ}	β	R^2_{Δ}	β	R^2_{Δ}
1. Ethnicity						
Native American vs Hispanic	-.288	.083				
Anglo vs. Hispanic			.047	.002		
Native American vs. Anglo and Hispanic					-.247 [†]	.061 [†]
2. Social Support Network Size					end of equation	
Native American and Hispanic only	-.454*	.206*				
Anglo and Hispanic only			.046	.002		
3. Interaction	end of equation					
Anglo vs Hispanic			1.449**	.480**		
Adjusted R^2	.221		.365		.043	
	$F=4.27^*$		$F=4.06^{**}$		$F=3.44^{\dagger}$	
	$n=42$		$n=21$		$n=97$	

* $p < .05$ ** $p < .005$ † $p < .10$

Nurturance

For the adolescent group, there was a trend toward significance at posttest for a difference in program effectiveness between the Native American participants and the other two ethnic groups ($\beta = -.288$, $F = 3.54$, $p = .067$), with the other two groups improving more than the Native Americans. This trend became significant at follow-up (see Table 9). At posttest the Hispanic adult mothers improved significantly more than the Anglo adult mothers. At follow-up, large support networks predicted an increase in nurturance for the Native American and Hispanic adult mothers (see Table 9 for posttest and follow-up results).

Small or Large Social Support Networks

A second set of analyses was run that examined whether very small or very large networks (\pm one *SD*) were predictive of program effectiveness. This variable was examined because of evidence that social support provides many benefits for parents (Belsky & Vondra, 1989), but that too much support can be detrimental, particularly to adolescent mothers (Cochran & Brassard, 1979; Klein & Cordell, 1987; Unger & Wandersman, 1985). Those adolescent mothers with particularly large or small social support networks showed smaller improvements or even a decrease in the use of effective discipline at follow-up ($\beta = .497$, $p = .026$, $R^2_{\Delta} = .247$) with a similar trend toward significance at posttest ($\beta = .287$, $p = .069$, $R^2_{\Delta} = .082$). At follow-up, 62% of those with large or small networks had decreases or no change in their effective discipline scores, while only 9% of those with network sizes one standard deviation within the mean experienced a decrease.

Table 9

Summary of Hierarchical Regression Analyses for Change in Nurturance Scores

Step and Predictor	Adolescents		Adults			
	Pre to Follow-up		Pre to Post		Pre to Follow-up	
	β	R^2_{Δ}	β	R^2_{Δ}	β	R^2_{Δ}
<u>1. Ethnicity</u>						
Hispanic vs. Native American	.730*	.430**				
Anglo vs. Native American	.920***				-.216	.047
Hispanic vs. Anglo			.286*	.082*		
<u>2. Social Support Network Size</u>						
Anglo and Native American only	end of equation		end of equation		.286*	.076*
Adjusted R^2	.363		.067		.087	
	$F=6.41^{**}$		$F=5.78^*$		$F=3.37^*$	
	$n=19$		$n=66$		$n=50$	

* $p < .05$ ** $p < .01$ *** $p < .005$

In summary, different variables, with no consistent patterns, were associated with program effectiveness for the two age groups and for the different parenting measures. Network size was positively related to improvements for some groups and negatively related for others. Social support network size was negatively related to change in effective discipline scores for the two adolescent minority groups. In contrast, large networks predicted improvements in effective discipline for adolescent Anglo mothers, in nurturance for adult Hispanic and Native American mothers, and in positive parent-child interactions for all adult mothers.

Where there were ethnic differences, one consistency was that the Native Americans fared less well than the Hispanic and Anglo mothers. In two cases this was only a trend, but in the case of adolescent mothers' improvement in nurturance at follow-up, the difference was significant. Another ethnic difference was that the Hispanic adult mothers improved more than the Anglo mothers in nurturance at posttest. One important difference between the two age groups is that where there were significant predictors of program effectiveness, the percentage of variance predicted for the adolescent group ranged between 20% to 48%, but this range for the adult mothers was 6% to 8%.

The Relation Between Maternal Self-Appraisals and Parenting Practices

It was expected that prior to the DTBY intervention the relation between maternal self-appraisals and parenting practices would be stronger for adult mothers than for adolescent mothers and that the strength of this relation would increase after exposure to the intervention. It was also predicted that this increase would be greater for the adolescent mothers. Correlations and the methods of comparing independent sample and dependent sample correlations described by Cohen (1996) and Steiger (1980),

respectively, were used to test these hypotheses. These correlations are displayed in Tables 10 and 11. It should be noted that the harsh punishment variable is one that the DTBY program aims to decrease and was expected to be negatively related to the maternal self-appraisals. Because 72 comparisons were made between the two age groups, the number of comparisons that would be predicted by chance to be different at the $\alpha < .05$ level is 3.6. In fact, only four comparisons were significant at that level, so the number of age differences in this study is not greater than what is predicted by chance. Seventy-two comparisons were also made between the two age groups. Seven of these comparisons were significant which is only slightly greater than what is predicted by chance, and three of the significant comparisons existed only in the small follow-up sample of adolescent mothers ($N=23$). None of the comparisons were significant at the $\alpha < .01$ level.

Although none of the comparisons were significant, many of the actual correlations were (see Tables 10 and 11). For the adolescent mothers, all three of the maternal self-perception measures were significantly correlated with limit setting and communication prior to the intervention, but, for satisfaction, these correlations were no longer significant at posttest. Sense of competences was significantly related to the effective use of discipline and harsh punishment before the intervention, but not at posttest, and one new correlation, that between positive attitude and autonomy emerged at posttest. In the smaller follow-up sample, none of the correlations with limit setting and communication remained significant at follow-up in this age group, but a significant correlation between maternal sense of confidence and rational guidance appeared at

Table 10

Correlations Between Maternal Self-Appraisals and Parenting Measures (Pretest to Posttest)

	Sense of Competence			Satisfaction			Positive Attitude		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
<u>Adolescent mothers</u>									
Limit Setting	.55 ***	.40 **	-.15	.44 ***	.09	-.35 †	.54 ***	.50 ***	-.04
Communication	.41 **	.44 ***	.03	.44 ***	.10	-.34 †	.47 ***	.38 **	-.09
Autonomy	.13	.12	-.01	.22 †	.07	-.15	.05	.25 *	.20
Effective Use of Discipline	.30 *	.23 †	-.07	.19	.14	-.05	.14	.18	.04
Harsh Punishment	-.28 *	-.15	.13	-.11	.07	.18	-.09	-.20 †	-.11
Rational Guidance	-.06	.15	.21	.01	.15	.14	.14	-.02	-.16
<i>n</i> =47									
<u>Adult mothers</u>									
Limit Setting	.33 ***	.35 ***	.02	.17 *	.12	-.05	.27 **	.45 ***	.18 *
Communication	.32 ***	.38 ***	.16	.46 ***	.26 **	-.20	.43 ***	.45 ***	.03
Autonomy	-.00	.18 *	.18*	.13 †	.14 †	.01	.02	.16 *	.14
Effective Use of Discipline	.27 **	.09	-.18	.15 †	.18 *	.03	.10	.22 *	.12
Harsh Punishment	-.36 ***	-.38 ***	-.02	-.09	-.24 **	-.15 †	-.25 **	-.42 ***	-.17 *
Rational Guidance	-.10	.15 †	.25*	.18 *	.16 †	-.02	.14 †	.12	.02
<i>n</i> =110									

Note. Harsh punishment is a measure that the DTBY intervention aims to decrease, so a negative correlation between the maternal self-appraisals and this measure is desired.

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ † $p \leq .10$

Table 11

Correlations between Maternal Self-Appraisals and Parenting Measures (Pretest to Follow-up)

	Sense of Competence			Satisfaction			Positive Attitude		
	Pre	Follow-up	Difference	Pre	Follow-up	Difference	Pre	Follow-up	Difference
<u>Adolescent mothers</u>									
Limit Setting	.52 **	.33 †	-.19	.40 *	.02	-.38	.63 ***	.22	-.41 †
Communication	.38 *	.09	-.29	.47 **	.21	-.26	.37 *	-.02	-.39
Autonomy	-.15	.15	.30	.12	.32 †	.20	-.17	.03	.20
Effective Use of Discipline	.26	-.11	-.37	.31 †	.08	-.23	.28 †	-.07	-.35
Harsh Punishment	-.19	-.06	.13	-.09	.23	.32	-.28	.36 *	.64 *
Rational Guidance	-.21	.37 *	.58 *	-.41 *	.32 †	.73 *	-.29 †	-.13	.16
<i>n=23</i>									
<u>Adult mothers</u>									
Limit Setting	.24 *	.38 ***	.14	.10	.14	.04	.24 *	.35 ***	.11
Communication	.41 ***	.42 ***	.01	.41 ***	.25 *	-.16	.41 ***	.51 ***	.10
Autonomy	-.11	-.04	.07	.13	.12	-.01	-.02	-.01	.01
Effective Use of Discipline	.26 *	.26 *	.00	.13	.16 †	.03	.07	.26 **	.19 †
Harsh Punishment	-.32 **	-.45 ***	-.13	-.14	-.16	-.02	-.38 ***	-.32 **	.06
Rational Guidance	-.06	.03	.09	.10	.20 †	.10	.07	.23 *	.16
<i>n=72</i>									

Note. Harsh punishment is a measure that the DTBY intervention aims to decrease, so a negative correlation between the maternal self-appraisals and this measure is desired.

* $p < .05$ ** $p < .01$ *** $p < .001$ † $p < .10$

follow-up as did a correlation between positive attitude and harsh punishment that was opposite the predicted direction.

In the adult mothers group, all three of the maternal self-perception measures were also significantly correlated with limit setting and communication prior to the intervention, but the correlation between satisfaction and limits was no longer significant at posttest. Harsh punishment was significantly correlated with both maternal sense of competence and positive attitude at both pretest and posttest, and sense of competence was significantly correlated with effective discipline at pretest, only. Significant correlations appeared at posttest between sense of competence and autonomy, between satisfaction and both effective use of discipline and harsh punishment, and between positive attitude and both autonomy and effective use of discipline. The patterns of correlations were similar for the smaller adult follow-up group. However, the correlation between sense of competence and effective discipline remained significant at follow-up, while the correlation between positive attitude and autonomy was no longer significant at that time.

Summary

Although the DTBY program was effective at increasing the mean level of many of the parenting beliefs and behaviors measured, there were no significant age-group differences in the effectiveness of the program for any of the dependent variables. However, there were differences in the variables that predicted program effectiveness for the two age groups. When change in maternal sense of competence was the outcome measure, initial sense of competence predicted change for both the adolescent and adult mothers, and an internal locus of control was associated with increases for the adolescent

mothers. When parenting practices were the outcome, different variables were associated with program effectiveness for the two age groups as well as for the different ethnic groups. Network size was positively related to improvements for some groups and negatively related for others. Where there were ethnic differences, one consistency was that the Native Americans fared less well than the Hispanic and Anglo mothers. There were no significant age and time differences in the correlations, but nonsignificant changes left fewer significant correlations at posttest and follow-up for the adolescent mothers, and there was a small increase in the number of significant correlations for the adult mothers.

CHAPTER IV

Discussion

Age Differences at Pretest

It was predicted that adolescent mothers would benefit from the DTBY program more than adult mothers because it was assumed that the adolescents would score lower than the adults on the parenting measures prior to the intervention. In fact, the adolescent mothers only scored lower on two of the parenting measures, encouragement of autonomy and effective use of discipline in the difficult behavior vignettes. The adolescents' lower scores in the encouragement of autonomy are congruent with a previous study that found adolescent mothers to score lower than adults in the physical freedom given to their children and their amount of protectiveness (Mercer, 1986b). These differences might be related to the adolescents having less experience in orienting toward the future (Nurmi, Poole, & Kalakoski, 1994). Autonomous behaviors in young children can cause more difficulty while they are occurring than do more dependent behaviors. The adolescents may not think of or understand how the encouragement of autonomy might be better for them and their child in the future. A second possible explanation is that the adolescents are struggling with establishing their own autonomy, a normal part of adolescence that might be disturbed by having a baby. Perhaps because they have not fully established their own autonomy, they cannot understand their toddlers' need for their own autonomy.

Age differences were also present in the measure of effective discipline. This measure required that the parents write out what they would do in a difficult parenting situation. It did not provide responses from which to choose and may therefore be more sensitive to differences in actual parenting practices and less sensitive to social desirability effects than are the other measures. The fact that this difference existed after education was controlled suggests that these differences are not due to differences in the ability to communicate how the parents would handle the situation.

The lack of differences in the other parenting measures is not consistent with much of the previous research done with adolescent mothers. For example, unlike the present study, studies have found that adolescents use more punishment including corporal punishment (Fox et al., 1987; Garcia Coll et al., 1987; Mercer, 1986b; Reis, 1989) and have stricter disciplinarian attitudes (Mercer, 1986b). The results of the present study are also different from those of Roosa and Vaughn (1984) who compared a group of adolescent mothers with children similar in age to those in the present study. The adolescent mothers in their study scored lower on scales that measured satisfaction and communication with their children; these scales are similar to the PCRI positive attitude and communication scales used in the present study. The difference between adult and adolescent mothers in mean levels of education was greater in the study by Roosa and Vaughn (2.3 years) than in the present study (.8 years) when education was statistically controlled for in the analyses. Other studies have also found differences between adolescents and adults in their communication with their children (Culp et al., 1988; Culp et al., 1991; Roosa et al., 1982). However, these studies were conducted

when the children were much younger than in the present study, which suggests that the child's age might be critical.

One possible explanation for the differences between the present study and previous research might be that the sample of adolescent mothers in this study have a current mean age of 21.4 and are defined as adolescent mothers based on their age at the birth of their child. Perhaps the adolescent mothers matured as parents during the first few years of their children's lives and caught up with the adult mothers (mean age of 32.5 years) in most areas. Although the differences between the two age groups in the number of children ($M=1.9$ for adolescents and $M=2.2$ for adults) and the youngest child's age ($M=2.6$ for adolescents $M=3.3$ for adults) were significant, they were not very large. Furthermore, the child's age was not significantly related to any of the outcome variables at pretest. It does not seem likely that these two factors are involved in the differences between the present and previous studies.

Another possible explanation for the small number of differences between the two age groups is that both the adolescent and adult samples had low levels of income and education, both of which were controlled for in the present study. Perhaps age becomes a more powerful moderator when major risk factors are not present, or earlier studies might be identifying differences related to SES variables rather than age.

Age Differences in Program Effectiveness

There were no significant age differences in the effectiveness of the DTBY intervention. There was a significant increase in the autonomy scores of the mothers as a combined group at posttest (see Table 5) and at follow-up (see Table 6), and the increase experienced by the adolescent mothers at follow-up (1.5 points) was greater than that

experienced by the adults (.9), but not to a significant degree. The results were similar for change in effective use of discipline at posttest, but there was no time difference for the experimental group as a whole at follow-up. The fact that mothers from both age groups benefit equally from this parenting intervention commends the program's effectiveness with various age groups. It seems that programs like DTBY, that are committed to working with families with high risk levels and to adapting to the needs of different ethnic groups, can be effective with both adult and adolescent mothers, particularly older adolescents. Some of the structural aspects of DTBY may be critical to its applicability to various age groups. The inclusion of the children and their siblings in the learning process and the high level of involvement required of the participants may be factors that are necessary for success with the adolescent mothers, and the loss of these aspects of the intervention might alter the effectiveness with this age group. The emphasis that DTBY places on improving the self-appraisals of parents might also be crucial.

Factors Predicting Change in Maternal Sense of Competence

Initial Sense of Competence

Lower initial competence scores predicted larger improvements in both age groups at both posttest and follow-up. This is in concurrence with previous research that has documented programs that have greater effectiveness with parents who are more at-risk (Barth et al., 1985; Bredehoft, 1990; 1996; Cudaback et al., 1990). Other programs have been effective only with groups that have fewer risk factors. The programs in these latter studies (Clark & Baker, 1983; Dumas & Albin 1986; Holden et al., 1990; Webster-Stratton, 1985) are behaviorally oriented and measure success and failure as a dichotomy.

Success in these studies was viewed as performance above specific criteria such as a 50% reduction in child noncompliance and cutoffs at specific points on a survey rather than as a continuum of improvement. These differences from the current study may explain the lack of consistency, or this difference may be due to the ways in which the DTBY program is adapted for a high-risk population.

Internal Locus of Control

Internal locus of control was positively related to increases in maternal sense of competence for the adolescent mothers, but not for the adult mothers. Possible explanations for the relation within the adolescent group will be discussed first, followed by a discussion of the difference between the two age groups.

It seems that among the adolescent mothers, those who had an internal locus of control were able to utilize the information provided to increase their sense of competence as a parent. They had the internal resources necessary for self-efficacy in the maternal role; they just needed more knowledge, which they were ready to assimilate. Those who think that difficulties in parenting their child are due to a lack of knowledge or training on their part are more likely to benefit from the information on parenting techniques that is presented in the DTBY program. Those who had an external locus of control did not benefit to the same degree from the instruction provided. Perhaps they did not appreciate that they could learn things to improve their parenting skills.

The finding of a relation between locus of control and program effectiveness in the present study is also consistent with the findings of Brewer and her colleagues (1981), who found a relation between mode of presentation and program effectiveness. Those participants who had an internal locus of control improved more when the

program required active participation, as does the DTBY program. However, participants in the study by Brewer and her colleagues seem to be adults rather than adolescents, making their results somewhat inconsistent with the present study.

The age differences in the present study can also be viewed as corroboration of the work of Stevens (1988), who found an internal locus of control to have a positive relation to parenting practices for adult mothers but not for adolescent mothers. The two studies suggest that there might be a developmental difference in the meaning of locus of control for adolescent and adult mothers and that this relation should be investigated further. Perhaps an internal locus of control is more strongly related to parental competence prior to intervention for the adult mothers, making an increase related to locus of control less likely, with the opposite being true for the adolescent mothers. It is possible that this difference is due to different levels of knowledge in the two groups. If adolescent mothers have a lower level of knowledge due to less exposure to parenting-related experiences, those with an internal locus of control will not necessarily have more confidence in the maternal role, but an increase in knowledge would correspond to an increase in sense of competence.

I examined the relation between maternal sense of competence and an internal locus of control prior to the intervention for the two age groups. Although the relation was slightly stronger for the adults in the posttest sample ($r=.22$ for adults and $r=.13$ for adolescents), the correlations for the follow-up samples were nearly identical ($r=.27$ for adults and $r=.26$ for adolescents). However, locus of control was a stronger predictor of change in sense of competence at follow-up for the adolescents than at posttest. There also were only small age differences in the correlations between internal locus of control

and the various parenting measures. Another possibility that was considered, but was not supported, was that there was a greater variability in the locus of control of the adolescent mothers making a difference easier to detect for this group. It was thought that there might greater variability in the adolescent group because it contained more Hispanic and Native American mothers than did the adult group. A review of the standard deviations of the two groups showed that the variability was actually greater for the adult mothers, thereby eliminating this argument as an explanation. Although adult mothers have been found to have a higher internal locus of control than adolescent mothers in previous studies, no such difference was found in the present study removing this as a possible explanation of the differences.

Social Support

None of the social support measures analyzed in this study were predictive of change in maternal sense of competence. These results are not in agreement with those of Dumas and Wahler (1983) who found social support to be predictive of intervention success. However, there are many differences between the two studies that help to explain the discrepancy. In the Dumas and Wahler study, insularity was used as the measure of social support; it was defined as social interactions that are mostly negative or neutral and are primarily with family members or agencies. The social support variables used in the present study were three different measures: (a) satisfaction with social support, (b) ratio of family members to friends, and (c) quality of support. Each of these social support measures is related to insularity as Wahler defined it but is not a complete measure of that variable. In the Dumas and Wahler study, insularity and SES predicted 49% of the variance of treatment outcome and correctly classified 82% of the families as

successful or unsuccessful. The program in that study was aimed at reducing coercive interactions between parents and their children with behavior problems, and training in that program consisted primarily of the use of time out and rewards. The classification as successful required that the oppositional behaviors of the child be reduced by 50% from baseline. In contrast, the outcome in this set of analyses was the change in maternal sense of competence. Although no relation was found between social support variables and change in sense of competence, later analyses with changes in parenting measures as the outcome show social support to be a predictor of change.

Factors Predicting Changes in Parenting Practices

Ethnic Differences

Ethnicity was predictive of change in effective discipline for adults and change in nurturance scores for both age groups. Among the adolescent mothers the Hispanic and Anglo mothers improved more in nurturance than did the Native American mothers. There was a trend toward a significant ethnic group difference in the change slope of nurturance at posttest and a significant difference at follow-up. The nurturance score is produced by combining the encouragement of autonomy and the use of rational guidance scales. A review of the two scales separately shows Native Americans improved less on both of these scales. (The interested reader can review the tables Appendix A that show the scores before and after the intervention for all variables in which ethnicity was a predictor of program effectiveness.) Native Americans had the lowest scores in autonomy at pretest and gained .05 points versus .7 points for the Hispanic and .4 points for Anglo mothers. The three ethnic groups were similar at pretest in the use of rational guidance, but the Native Americans decreased by .05 points while the Hispanic and

Anglo mothers increased by 1.1 and .6 points, respectively. In the follow-up group, Native Americans started lowest in the encouragement of autonomy, and gained only .8 points while the Hispanic and Anglo mothers gained 1.6 and 1.7 points. The Native Americans in this group had the highest mean in rational guidance at pretest, but they experienced a decrease of 1.2 points while the Hispanic and Anglo mothers gained .4 and .6 points, respectively.

Could the income levels of these groups explain this difference, because the Native Americans had a lower level of income than the other ethnic groups? Unexpectedly, the adolescent Native American mothers reported a mean income of \$20,300 (*mdn*=\$17,900) while the Anglo mothers reported \$13,000 (*mdn*=\$12,000) and the Hispanic mothers reported \$12,300 (*mdn*=\$10,080). Within the adult sample, the Native Americans reported the lowest level of income (*M*=\$17,100, *mdn*=\$16,000) with the Anglo mothers reporting the highest (*M*=\$24,100, *mdn*=\$18,000) and the Hispanic mothers reporting an income level in between the other two groups (*M*=\$22,200, *mdn*=\$18,000). Thus, it is not a low income level among the Native Americans that explains why they did not improve as much as the other two ethnic groups. Another possibility relates to the confound of ethnicity with site in this study. It is possible that program implementation differed at the sites with a large numbers of Native Americans. One example of this happening is at the Navajo sites where the classes were taught in both English and the Navajo language, which might reduce the actual amount of time spent on various topics or the number of topics covered in a session. Another possibility is that the curriculum is less suited for Native American parents, or the facilitators were less skilled.

Ethnic differences in the change slopes for nurturance among the adult was very different than the pattern of change that emerged in the adolescent mothers. Hispanic adult mothers experienced a greater increase than the Anglo mothers at posttest, but Anglo mothers had the highest scores at pretest and experienced an increase that was smaller than that experienced by the Hispanic mothers. The Anglo mothers started the highest and finished the highest, while the Hispanic mothers gained on them.

The trend toward an ethnic difference in the increase in effective discipline for the adult mothers is difficult to understand. For the follow-up group, the Native Americans had the highest scores at pretest ($M=4.00$) and experienced a decrease ($M=3.85$), but the Hispanic and Anglo mothers experienced an increase ($M=3.63$ to $M=3.97$ for the Hispanics; $M=3.86$ to $M=4.20$ for the Anglos). Perhaps the Hispanic group felt the greatest need for improvement in this area making them the most receptive to learning, while the Native Americans were satisfied with their abilities in handling difficult behaviors and therefore were less receptive to learning new methods. This idea is supported by the assertion of Joe and Malach (1992) that Native Americans prefer to accept some things the way they are rather than trying to change them, as well as by the finding of Gfellner (1990) that Native American parents' actual parenting is very similar to their ideal of parenting. The possible differences in program implementation that were discussed above might also apply here.

Another possibility is that the measurement device used to obtain this score is not as valid for Native American cultures as it is for the other two. The difficult behaviors listed include the child wishing to stay up late and watch television when the parent says it is time to go to bed. Some Native American parents believe in letting children set their

own schedules (Garcia Coll et al., 1995) and might not experience such a conflict. Another vignette involves being late for an important appointment. Because Native Americans have a present-oriented time frame, and desire an unhurried, present-oriented existence (Sipes, 1993), this vignette might have a different meaning for Native American parents than it does for the other two groups. An improvement in parenting skills may have occurred in the Native American group that is not detected by this instrument.

Unfortunately, ethnicity is confounded with site in this study, which makes the meaning of these ethnic differences less clear. It could be that the ethnic differences found are due more to differences in the ecology of the areas in which certain ethnic groups live rather than to actual cultural differences. Further study of these ethnic groups in various settings, while controlling for acculturation levels, would help to clarify the actual cause of these ethnic difference.

Small and Large Social Support Networks

As predicted, those mothers who had unusually small and large networks improved less than those whose network size was closer to the mean. However, this effect was observed only for the adolescent mothers when effective discipline scores were the outcome measure. Perhaps, among this age group, small networks failed to meet their needs for support which decreased their ability to learn from the DTBY program whereas very large networks inhibited their ability to apply what they had learned because too many people were giving parenting advice.

Ethnic and Age Differences in the Effect of Social Support

Although social support did not predict changes in maternal sense of competence in the present study, later analyses with parenting practices as the outcome variables found some interesting interactions between ethnicity and the size of participants' social support network. One interesting interaction was that the size of Hispanic and Native American adolescent mothers was negatively related to improvements in the use of effective discipline and positively related to this measure for Anglo adolescent mothers. Information from a study by Becerra and de Ande (1984) may help to explain why this difference was found. In that study, 55% of White adolescent mothers reported that their own opinion of themselves counted the most while only 10.5% of the Spanish-speaking Mexican Americans and 40.9% of the English-speaking Mexican Americans reported this about themselves. The Mexican Americans were more likely to report that the opinions of their mother, father, or husband mattered the most. This information along with the emphasis in Hispanic cultures on interdependent relations and *familism* suggests that Mexican American adolescent mothers are more susceptible to the influence of family members around them. These points may explain why a large support network was negatively related to improvements in the use of effective discipline for the Hispanic adolescent mothers in the present study. Perhaps the Hispanic adolescent mothers are influenced more by the parenting advice of their family members than they are by what they learned in the DTBY program, or they do what others suggest in order to please them. No similar study was found about Native American adolescent mothers, but because both of the minority groups have strong family ties and a traditional family structure, a similar effect may be occurring for the Native American adolescent mothers.

Another possible explanation for this interaction is that the Hispanic and Native American adolescent mothers with large networks have allowed the members of their support network to be highly involved in parenting their children. This would give the adolescent mothers fewer opportunities to practice what they have learned in the DTBY program. This notion is supported by a study that found Hispanic adolescent mothers displayed less sensitivity during unstructured play if they (a) reported greater overall support, (b) perceived their mothers as available to provide extensive support, or (c) were more satisfied with their childcare support (Contreras et al., 1997).

For adolescent Anglo mothers it might be that large networks simply served to better meet their needs while they attended more to what they believed was the right thing to do rather than what family members and friends were telling them to do. Another possible explanation is that the ideas taught in the DTBY program are more consistent with the views held by the members of Anglo mothers' support networks.

An important finding in the study by Becerra and de Ande (1984) was that the differences in valuing one's own opinion over others was strongly influenced by acculturation as measured by language used. A shortfall of the present study is that acculturation data is only available for very small portion of the participants, so this variable could not be examined.

Recall that large support networks hindered improvements for the minority mothers when effective discipline was the outcome measure for the adolescent mothers. In contrast, social support network size was positively related to increases in positive parent-child interactions for all of the groups of adult mothers at posttest. In Hispanic cultures, the role of mother is highly valued, and mothers generally have a significant

level of power within the home and activities related to the home (Mirande, 1988). Perhaps large social support networks were more supportive of the adult mothers' changes in parenting techniques because the older mothers are respected in this role while the younger mothers are seen as needing help in this role. A similar difference might be occurring with the Native Americans. The age difference might also be related to the different outcome measures. Smooth interpersonal relations are highly valued in Hispanic cultures (Garcia Coll et al., 1995), and improvements in relations are a large part of what the scales that constitute parent-child interactions measure.

Large social support networks were also predictive of increases in nurturance for the adult Native American and Anglo mothers, but not for the Hispanic mothers. The encouragement of autonomy is included in the nurturance variable, and autonomy is not something that is valued or normally encouraged in traditional Hispanic cultures (Harwood, 1992). The presence of many people in the adult mothers' lives who do not believe in encouragement of autonomy in children could decrease the mothers' encouragement of these behaviors. In contrast, autonomy is valued in most Anglo circles, so a larger number of people in mothers' networks might help to support the change toward a greater encouragement of autonomy. Although Native American cultures such as the Navajo are collectivistic as are Hispanic cultures, they often believe in allowing their children to learn through natural consequences rather than in protecting them from harm (Gray & Cosgrove, 1985). This may explain why larger networks are also associated with increases in nurturance for the Native Americans in the present study.

The Relation Between Maternal Self-Appraisals and Parenting Practices

Many of the relations between maternal self-appraisals and parenting practices were positively related at pretest for both age groups. Previous studies have found similar relations for adult mothers (Bohlin & Hagekull, 1987; Campis et al., 1986). Prior to the intervention in the present study, the ability to set limits on and communicate with children as well as not use harsh discipline were predictive of a positive sense of competence for both age groups, but the encouragement of autonomy and the use of rational guidance techniques were not. The ability to set limits and to communicate with children were also predictive of satisfaction with and a positive attitude toward the maternal role. Perhaps autonomy was not related to sense of competence because mothers of both ages thought that they were doing the right thing by protecting their children from failures and by providing the children with whatever they want. One possible explanation for the lack of a relation between rational guidance and sense of competence is that techniques such as time outs, ignoring misbehavior, and choices were being improperly used and were therefore not effective. Another possible explanation is that these mothers have few role models who use these techniques, which made them question whether they were appropriate ways to parent.

Significant correlations were observed between maternal sense of competence and the parenting practices of adolescent mothers, which differs from the results of previous studies that did not find such a correlation for this age group (Fuller, 1987; Julian, 1983; Kemp et al., 1990). Three possible explanations for this inconsistency will be discussed here. First, the studies cited were accomplished early in the life of the children when the mothers had little experience upon which to base their self-perceptions, but the children

in the present study were from 2 to 5 years of age, giving the mothers adequate time to judge their own competence. Another possible explanation is that many of the mothers in the current study are no longer adolescents but are now young adults. They may have matured in ways that make them more similar to the adults in previous studies. A third explanation is that the present study uses self-report measures that might not be as accurate as observation techniques. However, the fact that the effective discipline scores were correlated with sense of competence at pretest puts this explanation in question because it is much more difficult to choose the "right" answer with the format used to calculate this score.

Age and Time Differences

The strength of the relations between the various parenting practices and maternal self-appraisals differed between the two age groups at the $\alpha < .05$ level in only 4 of the 72 comparisons made, which does not exceed the number predicted by chance, and all four of these differences occurred only within the smaller sample that participated in the follow-up. Similarly, the intervention did not have a strong effect on the correlation between mothers' self-perceptions and their report of their parenting practices. There were four increases that were significant at the $\alpha < .05$ level at posttest for the adult mothers and three significant increases for the adolescent mothers at follow-up, with one of them, that between harsh punishment and positive attitude, being in the direction opposite of what was predicted. The total of seven significant differences is only slightly greater than what is predicted by chance, which makes the meaning of these differences uncertain. Also, none of the changes were significant at the $\alpha < .01$ level, so they will not be interpreted in this discussion.

Although there were no significant time differences between the correlations, the changes that occurred following the intervention resulted in a decrease in the number of correlations that were significant (in the predicted direction) for the adolescent mothers and an increase in the number of correlations that were significant for the adult mothers. For the adolescent mothers 15 correlations were significant prior to the intervention but only 7 remained significant after the program. In contrast, 18 correlations were significant for the adult group prior to the intervention and 22 were significant subsequent to DTBY. The decreases in the correlation between parenting sense of competence and parenting practices for the adolescent mothers are similar to the results of Pisterman and her colleagues (1992) who found a program-related increase in parental sense of competence and improvements in the observed behaviors of the parents and children, but the correlations between these two types of changes were nonsignificant and negative. It is assumed that the parents in their study are primarily adults because no information about their ages is given.

The issue of self-report as discussed above could also be involved in the decrease in the number of variables that were significantly correlated with maternal self-appraisals after the intervention for the adolescent mothers. It is possible that those adolescent mothers who reported a high sense of competence also tended to minimize their problems with child-rearing prior to the program. Perhaps the discussions among parents and the knowledge gained about the challenges of parenting and child development caused them to be more accurate in their self-reports at posttest and follow-up. Another possibility is that they were more comfortable with the program and its staff after the intervention, which made them more willing to self-disclose.

Limitations

This study has limitations related to the fact that because it was accomplished using secondary data, the parameters of certain factors could not be controlled. One of these limitations that has been discussed throughout this chapter is that the average age of adolescent mothers in this study is 21.4. However, this limitation could also be viewed as a benefit because so few studies follow adolescent mothers into the early adult years, and greater understanding of this group of mothers is beneficial to service providers. A related problem is the small sample size for the adolescent mothers at follow-up. The high cutoff age for the adolescent mothers was driven by the limitations on group size. Another general limitation is the lack of observation measures and the associated reliance upon self-report measures. HOME observation data exists for a portion of the later participants, but not enough of this data currently gathered includes adolescent mothers for age-related analyses to be run.

Two limitations on this study relate to the findings about ethnicity. The first is the confound of site with ethnicity, which makes the meaning of the ethnic differences identified somewhat ambiguous. A second weakness is the small number of African Americans in this study, which did not allow for their inclusion in the analyses that involved ethnicity. As African Americans constitute a large portion of the adolescent mothers in our country, their inclusion would be favorable.

Implications

The primary implication of this study is that those who conduct the DTBY program and similar programs aimed at parents of preschoolers should not hesitate to recruit younger mothers into their programs. Because most of the programs for

adolescent mothers are aimed at mothers with young babies, it is important that the parenting education of young mothers continue in some forum, and they seem likely to benefit from programs as well as the adult mothers do. However, it is important that these programs track participants by age group so that they can ensure the adolescent mothers are benefiting from their program, especially if the adolescent mothers are younger than those in the present study.

Investigations into the Determinants of Program Effectiveness

Even though the two age groups benefited similarly from the DTBY program, there were interesting age differences in the determinants of who benefited most and in the changes in the relations between maternal self-appraisals and parenting practices. Even as adolescent mothers enter adulthood, they are not the same as older mothers who waited until adulthood to become parents. Separate analyses must be performed according to age group in order to identify processes that are taking place in the different age groups.

Similarly, the results of the present study indicate the need for further exploration into the variables that have consequences for program effectiveness. Too many researchers merely investigate whether their program was effective or not rather than further looking at for whom it was and was not effective and what were the variables distinguished between these two groups. Investigations into these questions would point to improvements in programs, so that maintaining the status quo or terminating the whole program are not the only options. These types of studies might be more important for programs that focus on adolescent mothers because of the fact that the variables that

influenced improvement in the present study predicted larger percentages of variance for adolescent mothers than for adults.

Recommended Changes in the Program

Program emphasis. The lack of improvement in some of the parenting variables combined with some of the changes in the relations between variables suggests the need for some changes in program emphasis. The mothers who participated in the follow-up in this study did not report an increase in their use of rational guidance or effective discipline techniques, but they did report a decrease in their use of harsh punishment. However, among the adolescent mothers, those who were using rational guidance felt more competent in the maternal role while a decrease in the use of harsh punishment left some with a less positive attitude towards parenting. Although there was not a significant increase in the use of rational guidance within the adult mothers, similar changes in the relation between maternal self-perceptions and rational guidance and harsh punishment did not occur within the adult mothers. It seems that greater emphasis should be put on instruction and practice in the positive discipline techniques for both groups, although this change might be more meaningful to the maternal self-appraisals of the adolescent mothers. Additionally, the younger mothers should be provided with more support and encouragement in their efforts to avoid harsh punishment because of possible negative effects on their attitude towards parenting and their enjoyment of their child.

Differences related to ethnicity. The adult Native American participants did not improve as much as the two other ethnicities in effective discipline scores, and the adolescent Native Americans did not improve as much in nurturance. It is not clear why

these differences occurred. They do not seem to be connected to income levels. Further validation of the measure used to obtain the effective discipline score should be conducted along with a study of possible blocks to improvement for this ethnic group. Perhaps greater acknowledgment of the adult Native American mothers' strengths and encouragement to build upon them would increase their improvement in effective discipline.

Interactions of ethnicity and social support. For the younger Hispanic and Native American mothers, who seem to experience some negative influence from large social support networks, it is important to include in a parenting intervention the people who are most highly involved with the young mother's parenting such as her own mother or husband. A shorter, modified program that introduces them to the concepts they will be learning and instills in them an affiliation for the program may be adequate if they are not willing or able to attend the full program. It seems that this type of an addition to programs would benefit all mothers, but it might be essential for program success with young Hispanic and Native American mothers who have frequent interaction with large support networks. For the Hispanic and Native American adults and Anglo adolescents, those with small support networks should be identified and provided with extra help in building larger support networks.

This study identified differences between mothers who were adults when their children were born and mothers who were adolescents when their children were born but are now young adults. Little research has been accomplished that examines the latter group. On the contrary, most work that has been accomplished with adolescent mothers

as its subjects has focused on the early years of parenthood while the mother is still very young. Clearly we should not neglect these mothers as they become young adults.

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APPENDIX

Table 12

Parenting Measure Scores at Pretest and Posttest by Ethnicity and Age

	Adolescent			Adult		
	Pre	Post	Change	Pre	Post	Change
<u>Autonomy</u>						
Hispanic	21.33	22.08	.75	23.53	24.20	.67
Native American	20.35	20.41	.06	21.32	21.79	.47
Anglo	23.53	23.91	.38	24.65	24.98	.33
		<i>n</i> =47			<i>n</i> =111	
<u>Rational Guidance</u>						
Hispanic	12.36	13.36	1.00	11.29	12.86	1.57
Native American	12.21	12.14	-.07	11.19	11.76	.57
Anglo	11.94	12.50	.56	12.73	13.13	.40
		<i>n</i> =43			<i>n</i> =100	

Table 13

Parenting Measure Scores at Pretest and Follow-Up by Ethnicity and Age

	Adolescent			Adult		
	Pre	Follow-up	Change	Pre	Follow-up	Change
<u>Autonomy</u>						
Hispanic	21.60	23.20	1.60	23.50	23.88	.38
Native American	19.40	20.20	.80	20.94	23.17	2.23
Anglo	23.81	25.54	1.73	24.99	25.43	.44
		<i>n</i> =23			<i>n</i> =71	
<u>Rational Guidance</u>						
Hispanic	13.00	13.40	.40	10.75	12.00	1.25
Native American	13.20	12.00	-1.20	11.24	11.67	.43
Anglo	12.46	13.08	.62	11.55	12.83	1.28
		<i>n</i> =23			<i>n</i> =70	
<u>Effective Discipline</u>						
Hispanic	3.10	3.30	.20	3.63	3.97	.34
Native American	3.58	3.93	.35	4.00	3.85	-.15
Anglo	3.27	3.66	.39	3.86	4.20	.34
		<i>n</i> =23			<i>n</i> =68	