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Disadvantaged Single Teenage Mothers and Their Children: Consequences of Free Educational Day Care*

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The benefits of providing free educational day care from birth to children of single teen-age mothers were examined in a 4 1/2 year longitudinal study. Analysis of the data indicated that the children benefitted intellectually from the program scoring significantly higher than controls on a general cognitive index. Mothers had an increased likelihood of completing high school, obtaining post-secondary training and becoming self-supporting. Implications for public policy are discussed.

Introduction

The adverse consequences of teen-age childbearing are well documented and include both risks for the health and development of the child (Baldwin & Cain, 1981; Granger, 1982) and diminished educational and vocational achievement for the teen-age mother (Card & Wise, 1978; Furstenberg & Crawford, 1980; Moore, Hofferth, Wetheimer, Waite, & Caldwell, 1981). A large number of adolescent mothers remain single, ill prepared to provide for themselves and their children. Those who marry as teen-agers are more likely to separate and divorce than women who marry later and conceive within wedlock (McCarthy & Menken, 1979). Ironically, the ultimate economic position of women who marry and whose marriages subsequently break up is even worse than that of women who never marry (Furstenberg & Crawford, 1980). Clearly, then, adolescent mothers constitute a subgroup of single or

potentially single parents which is especially in need of human services.

The number of services directed toward ameliorating the problems associated with adolescent pregnancy increased sharply during the 1970's. A small number of programs conducted studies to evaluate their effectiveness. After reviewing these studies, Klerman (1979) concluded that the service programs were effective in some areas. The rate of poor clinical outcomes among participating mothers and infants was reduced; toxemia, prematurity, and post-natal death rates were lower and Apgar scores were higher than among nonparticipants. Also, the programs appeared to be successful in helping their clients to remain in school during pregnancy and to return to classes after delivery. The results were less positive, however, in terms of long-term continuation of education, avoidance or delay of subsequent pregnancy, and achievement of economic independence.

Klerman noted that most of the studies reviewed were very limited with respect to methodology, suffering, for example, either from the complete absence of comparison groups or the use of inappropriate comparison groups, or retrospective designs, and inadequate data collection methods. Those studies with reasonably adequate methodology focused on limited problems such as the occurrence of medical complications. If service programs for pregnant adolescents and young parents are to be advocated as national policy, Klerman argued, it would be helpful to have more and better evaluative studies. She

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advocated strengthening the programs themselves, particularly those components directed toward improving the long-term outcomes for mother and child, and urged that program evaluation be more methodologically sophisticated.

Studies published since Klerman's review emphasize the need for continued efforts toward improving the long-term outcomes for teen-age mothers and their children. Moore and her colleagues found that even when the effects of socioeconomic background were statistically controlled, age at first birth was one of the most powerful influences on a mother's subsequent educational level and vocational success (Moore et al., 1981). Problems with child care are believed to be in large part responsible for the failure of many adolescent parents to complete their educations. In a nationwide study cited by the Guttmacher Institute, the most significant unmet need of teenage parents was for infant day care (Teenage Pregnancy, 1981). In a follow-up of women who had participated in the National Collaborative Perinatal Project, Broman (1981) found a number of deficits associated with teen-age parenthood. Seven years after birth, women who had borne a child during their teenage years were still more poorly educated than were women who had delayed childbirth, and more were unmarried and living on public assistance. At age 7, their children were more often living in foster or adoptive homes than were children of older women. Biological deficit was not strongly associated with early childbearing in this sample of women, all of whom received some prenatal care, but the adverse effects of environmental disadvantage were evident in the lower intelligence test and school performance of the children of adolescents. From her own and other data, Broman concluded that support systems for teen-age parents should focus on enabling the young mother to continue her education and on providing supplementary stimulation programs for the child.

The present study represents a small but truly experimental test of the effects of having such a support system upon the subsequent lives of single, teen-age mothers. For the past 12 years, the Frank Porter Graham Child Development Center has been engaged in a longitudinal study of the causes and prevention of mild mental retardation and school failure among the children of socioeconomically disadvantaged parents. The children in the study were randomly assigned at birth either to an experimental group which received free educational day care, or to an untreated control group. Day care for the experimental group began before 3 months of age and continued until the child entered public kindergarten. Although the study was not

designed specifically for teen mothers, some of the children in each group were born to teenagers; therefore, embedded within the larger study of mild mental retardation was the opportunity to examine the effect upon the subsequent achievement of disadvantaged teen parents of providing them, from the birth of their child, with high quality free child care services. The effect of educational day care on the cognitive performance of the subgroup of children born to teen-agers was also assessed.

Method

Subjects:

Families who participated in the study were initially identified through a screening process in local agencies and prenatal clinics. Final eligibility for participation was determined on the basis of a High Risk Index (Ramey & Smith, 1977) that included such factors as parental income, education, history of mental retardation, and evidence of psychosocial problems. In addition, to be included, the child was to be free of obvious handicap at birth. Once determined eligible, each family was randomly assigned either to the Experimental group or to a Control group. Ninety-three percent of families invited to join the study agreed in advance to the condition of random assignment and accepted their placements.

For the present study, a "teen-age" mother was defined as one 17 years of age or younger. Of the original sample of 109 families, 34 mothers were teen-agers. Attrition among teen-mother families that led to exclusion from the present sample included two deaths (one crib death, one mother who died in a car accident), two voluntary withdrawals, and one child who proved to have a physician confirmed biological anomaly. Thus, the present sample consisted of 29 teen-agers, 14 assigned to the Experimental day care group and 15 to the Control group. This small sample size limits the usefulness of conventional inferential statistics. However, it is believed that this limitation is substantially offset by the experimental design which permitted study of the effects of readily available day care without the bias inherent in studies of parents who self-select day care.

Table 1 presents descriptive statistics on the sample by group. All teens were still in high school or junior high when their child was born. All were primiparous. None of the mothers randomly assigned to the Experimental group had ever married. Two teen-agers in the Control group were married at the time of their child's birth; however, both marriages ended before the baby was 18 months old. Thus, all mothers in the study were single for much of the time covered in the study.

Table 1.
*Characteristics of Sample by Maternal Age and
 by Group at the Time of the Child's Birth*

	Group	
	Experimental <i>n</i> = 14	Control <i>n</i> = 15
Maternal age @ birth (in years)	15.86 (0.77) ^a	16.07 (0.96)
Maternal education @ birth	9.21 (1.12)	8.80 (1.26)
Percent first- born children	100	100
Percent families on AFDC @ birth (or at initial contact)	36	33
Percent single mothers	100	87

^aStandard deviations are in parentheses.

Procedure:

The experimental intervention consisted of a systematic educational program delivered in a day care center. There were other day care facilities in the area, some of which were utilized by families in the Control group. However, a number of features made the experimental day care center unique relative to others in the community. These included: (1) the requirement that the child be admitted in early infancy (i.e., before 3 months of age); (2) the delivery, from infancy, of a systematic curriculum designed to enhance cognitive, language, and social development; (3) the program was furnished totally without cost to parents; (4) medical care for children was furnished on site; and (5) free transportation for children was provided. There was no systematic parent education program for mothers in the Experimental group and no distinction was made between teen-aged and older parents. The educational intervention and curriculum have been fully described in several previous publications (Ramey, Collier, Sparling, Loda, Campbell, Ingram, & Finkelstein, 1976; Ramey, McGinness, Cross, & Barrie-Blackley, 1982; Sparling & Lewis, 1979).

As an incentive for participation, Control group families were given free disposable diapers. Also, to eliminate possible nutritional differences between the groups, Control families received free infant formula for the first 15 months of the child's life. Children in the Control group were reared in various caregiving arrangements, ranging from care at home by mother to enrollment in other local organized day care programs. The most important difference between the groups was that parents in the Experimental condition had free child care available from the child's birth

whether or not they sought it; all they had to do was accept it once offered. Control group parents who utilized day care had to secure it for themselves.

Measures:

Assessments of child and family characteristics were carried out at specified points throughout the study and included, among other things, parent interviews, measures of parent attitudes, and standardized tests of the children. Demographic variables periodically assessed included facts about the mother's education, occupation, income, marital status, and for Controls, utilization of day care.

Success Rating:

In order to assess possible effects on teen-aged mothers of having free child care available for their infants, a Success Rating was devised to be applied to mothers in the Experimental and Control groups. This rating served as the major outcome variable for the teen-aged mothers in this study. Mothers were classified as More Successful or Less Successful primarily on the basis of information available at the point when their children were 54 months of age, the last assessment occasion for the preschool intervention. Criteria for attaining More Successful status were three: 1) The mother herself or her immediate family (with significant help from her) reared the child and in addition, the child was never placed in foster care by the Department of Social Services because of parental neglect or abuse; 2) The mother completed high school or made 4 years' educational progress in the 54 month time span; and 3) The family became economically self-supporting to the point that AFDC funds were no longer used except in cases where the mother was a student, had made 4 year's educational progress in the 4 1/2 year span, and was continuing her education. Failure to meet criterion 1 resulted in automatic assignment to the Less Successful category regardless of when it occurred. Determination of criteria 2 and 3 was based on the mother's status 4 1/2 years after the child was born. All three conditions had to be satisfied in order to merit More Successful status. Using these criteria, the percent of More Successful teen-agers in each group was computed.

Results and Discussion

The following questions were asked: (1) Did the proportion of teen mothers who attained More Successful status differ in the Experimental and Control groups? (2) Did Experimental and Control teen mothers differ on specific demographic indications of progress when their children reached 54 months of age? (3) Did the subgroup of children born to

teen-agers benefit from the intervention program to the same degree as other children?

Having high quality, free day care available increased the success rate for teen-age mothers in the Experimental group. Seventy-one percent of teen-agers in the Experimental group, compared to 47% in the Control group, attained More Successful status. A test for the significance of the difference between two proportions yields a z-score of 1.32, $p < .095$ (1-tailed). Thus, the present results are suggestive of a strong trend, but need replication with a sample of more adequate size. Nonetheless, the proportionate gain in More Successful status for mothers in the Experimental group is impressive, given the fact that teens in both groups were from similar backgrounds and had similar opportunities for advancement, exclusive of very easy access to free child care.

Data pertinent to the second question, that of indications of positive life changes within the two groups, is presented in Table 2. Sufficient contact with all mothers in the Control group was maintained to permit assessment of their occupational, educational and marital status when their child was 54 months of age. One mother in the Experimental group gave her infant up for adoption and was lost to subsequent follow-up even though a valid success rating could be made in her case. As can be seen in Table 2 mothers in the Experimental group showed more indications of progress. For example, more of them attained education and vocational training beyond the minimum 12 years required for the More Successful rating. By the time their children were 54 months old, the average educational level of

teen-age mothers in the Experimental group exceeded that attained by teen-agers in the Control group by more than 1 year, and 46% of Experimental group mothers, compared with only 13% in the Control group, had attained at least one year of post-high school education.

In addition to greater educational change, more Experimental than Control group teen-age mothers became self-supporting by the time their child was 54 months old. Of those mothers not classified as students, 70% of the Experimental mothers, compared to 58% of the Control mothers were not receiving Aid to Families with Dependent Children funds.

Although the rate of repeat pregnancies was not included in the success rating, the researchers were interested in the rate of subsequent births to mothers in both groups. Subsequent children were fewer in the Experimental group; 3 of 13, or 23%, of the Experimental teen-age mothers had subsequent children, compared with 6 of 15, or 40%, in the Control group.

Finally, 6 of 28 teens had married by the time their child was 54 months old; 4 in the Experimental group, 2 in the Control.

Cognitive Development of Children Born to Teen-agers

Previously published papers have examined the effect of the day care program on the children's cognitive development (Ramey & Campbell, 1984; Ramey, Yeates, & Short, 1984). These reports show that beginning at 18 months, the Experimental day care recipients consistently and significantly out performed the children in the Control group. However, because some studies suggest that the children of disadvantaged teen-agers may be at somewhat greater risk for developmental problems than are the children of disadvantaged adults (Baldwin & Cain, 1981), the authors thought it reasonable to determine whether a favorable effect of the experimental intervention could be shown in a sample limited to the children of teen-agers. The analysis of scores the children attained on the McCarthy Scales of Children's Abilities (McCarthy, 1972) at 54 months revealed that within the subgroup of children born to teen-agers the mean General Cognitive Index score of the day care recipients was 105.9, whereas the mean General Cognitive Index score attained by the Control group was 90.5, ($t = 2.92, p < .01$). These scores are comparable to the full sample mean General Cognitive Indices of 101.2 and 91.1 for the Experimental and Control groups respectively reported by Ramey and Campbell (1984). It was concluded, therefore, that the children of teen-agers benefitted intellectually from educational day care and that the effect was equal to or greater than the effect on the group as a whole.

Table 2.
Demographic Characteristics of Teenaged Mothers by Intervention Group when Child Reached 54 Months of Age

	Group	
	Experimental <i>n</i> = 13 ^a	Control <i>n</i> = 15
Mean maternal education (in years)	12.08	11.00
Standard deviation	1.75	1.73
Percent with post-high school training	46	13
Percent self-supporting	70	58
Percent with subsequent children	23	40
Percent single mothers	64	87

^a54-month data not available for one mother who gave up custody of her child.

Summary and Conclusions

It was found that, relative to a Control group, teen-age mothers who had assured free access to high quality day care for their children had an increased likelihood of completing high school, obtaining post-secondary training and becoming self-supporting. Whereas almost three-quarters of teen mothers whose children were randomly assigned to an Experimental day care group graduated from high school and became self-supporting, fewer than half of the teen mothers in the Control group attained those goals. The children of teen-agers benefited from the educational day care program as well, as reflected in the higher mental test scores of children in the Experimental group. These findings were interpreted to mean that educational day care is a source of developmental support both for teen-age mothers and for their children.

The mothers in the Experimental and Control groups had access to the same basic set of community resources. They attended the same secondary schools, had access to the same college and vocational school system, and had the same resources for low cost medical care for themselves. Thus, it was concluded that easy access to good day care service beginning in their child's infancy was probably an important factor in the differential success rate of the Experimental group. Furthermore, because assignment to the intervention condition was random, the present study is free from any bias obtained in those studies in which more highly motivated parents self-select day care.

The study did not contrast the achievements of teen-age mothers for whom day care of any sort was provided with those mothers who had no day care available. As already mentioned, a number of teen-age mothers in the Control group enrolled their children in various community day care arrangements, and these arrangements may well have been instrumental in the success of most of those who finished high school and became self-supporting. Significantly, 86% of those Control group teens who attained More Successful status utilized 24 or more months of day care during the 54-month interval. It cannot, of course, be said that the availability of community day care to selected Control group mothers *caused* them to attain More Successful status. The utilization of day care within the Control group was not random, and it is likely that the more highly motivated mothers sought out and used this community resource. However, it is also likely that without such a resource the potential of these more motivated Control mothers might have gone unrealized.

Why did a larger proportion of teens for whom free child care from infancy was provided obtain More Successful status? Several

differences between the investigators' program and day care programs that were more generally available may help to explain this higher success rate. First, participants in the program were actively recruited through social service and health care facilities and those assigned to the Experimental condition were offered day care, whereas Control group users of community day care centers had to seek the service on their own. Second, in contrast to most community centers which served toddlers and older children, the program enrolled children in early infancy. Third, the program was provided without cost. Finally, on-site health care and dependable, free transportation were included, ensuring that more of the teen-age mothers' resources were available for furthering their own development.

In the United States today there are strong pressures toward eliminating or changing social services programs that benefit teen-agers. For example, policies that require parental consent for teen-age girls to obtain contraceptives and restriction of federal funds for abortions make it difficult for teen-agers to prevent or terminate pregnancies. At the same time, rising costs are making it harder to provide quality child care services. The benefits to this sample of single teen-age mothers of having easy access to good child care seem clear. The greatest impact was in terms of greater educational attainment. Ultimately, too, more of the teens for whom free child care was provided were able to stop receiving support for their children from public sources.

Few of the single, teen-aged mothers in either group fit the stereotype of the multi-generational AFDC recipient perpetuating the poverty cycle by passively accepting welfare while their families expand. It was the authors' impression that most of the teen mothers in the sample wanted to work at good jobs that promised advancement and tried hard to further their education in order to do so. A good child care program can make the difference between success or failure for single, teen-age mothers.

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