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Mothers' Age at First Birth and Children's Birth Weight: Are Pregnant Teenagers Biologically Disadvantaged?

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MOTHERS' AGE AT FIRST BIRTH AND CHILDREN'S BIRTH WEIGHT: ARE PREGNANT TEENAGERS BIOLOGICALLY DISADVANTAGED?

By

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ABSTRACT

MOTHERS' AGE AT FIRST BIRTH AND CHILDREN'S BIRTH WEIGHT: ARE PREGNANT TEENAGERS BIOLOGICALLY DISADVANTAGED?

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This research examines age differences in low birth weight by age of mother at birth. Data from the 1982 National Survey of Family Growth (Cycle III),were analyzed with multivariate and correlation analysis to examine the effects of maternal age on children's birth weight while controlling the impacts of poverty, marital status, residential region, urban/rural residence, mother's education, prenatal care and race. The correlation of mother's age with birth weight was positive and statistically significant. Yet when the effects of the control variables had been partialled out, the association between maternal age at birth and children's birth weight vanished. The most important factors in reducing infant birth weight were birth to a black mother or to a mother in poverty. These findings indicate that the disadvantage (shown by low birth weight) of being born to a teenager is due not to her physical immaturity but to her social disadvantage.

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INTRODUCTION

In recent years there has been a growing concern over the infant mortality rate (IMR); that is, infant deaths (before the first birthday) per 1,000 live births, during a specific time period. National statistics (Centers for Disease Control, 1986) indicate that infants born to teenage mothers are at a much greater risk of dying during their first year of life than infants born to women between the ages of 20 to 35 years. Numerous researchers have correlated low birth weight and high IMR with the young age of the mother. Thus, the agencies I have contacted in Ingham and Washtenaw Counties, approach the problem of births at high risk of infant mortality by trying to curb the number of children born to teenagers. Lowering fertility among teens in the United States, while it may be appropriate and commendable, does not deal with the problems of poverty associated with teenage childbearing. As such, these agencies may be confounding the biological effects of very young maternal age with the social effects of poverty upon the rate of low-weight births. Hence, to form effective public policies, it is necessary to disaggregate and estimate the relative effects of the biological factor of maternal age and the mutable social factors of poverty on low birth weight.

The problem of teenage pregnancy and ensuing infant mortality is complex and needs to be understood from two vantage points: sub-populations with a high incidence of pregnancy and low birth weight differences between adolescents and

older women.

REVIEW OF THE LITERATURE

Teenage parenting, while it occurs across all social classes and races, is significantly a part of the life history of those who are living in poverty and for those who are black (Pratt et al. 1984, Hogan & Kitagawa, 1985). Due to the fact that early parenthood is more prevalent among specific groups of people, it can not be considered to be a random event within the U.S. culture (Geronimus, 1987). The question of what is it about being poor and black that leads to early parenthood needs to be addressed. One way of looking at this question is to think about the timing of entry into adulthood. For the economically advantaged young person, adulthood is something that is achieved, for instance, after educational goals have been reached, a time at which he/she can become economically independent from parents. Higher education in this case is the bench mark of adulthood. For those for whom education or careers seem beyond reach, other benchmarks may have to suffice to usher them into adult status. Parenthood can be the avenue to attain such status when there are no goals to make this event worthy of postponement (Hogan & Kitagawa, 1985).

Hogan and Kitagawa (1985) looked at the social environment (economic status, the size of the family, household head, neighborhood, parenthood of teenage sisters, parental control

of dating) to see if those black teens from high-risk social environments (ghetto neighborhood, non-intact and large family, lack of parental control in dating, and a sister who as a teenager became a mother) are more likely to become teenage mothers than black teenagers from low-risk social environments (good neighborhood, intact and small family, parentally controlled dating, and no sister who became a teenage parent). Their results demonstrated that girls living in high-risk social environments experience 8.3 times more pregnancies than teenagers living in low-risk social environments. Hogan and Kitagawa conclude that, "social circumstances associated with the black lower class are a major cause of early, premarital childbearing among black adolescents." (pp. 852)

Parenting expectations within low economic sub-groups may fly in the face of the accepted norms of the larger society. Early parenthood may not be seen as "deviant" behavior especially if women with babies have access to money and services through public welfare programs (something to which men do not have access). Through public welfare, women have more economic security than men who live with unemployment and underemployment (Lichter, 1988) and who are not able to tap into welfare benefits. Men become an economic liability to those dependent on welfare because if men are present in a household, welfare benefits are at risk of being cut off.

Stack (1980) found that the welfare system worked against the

formation of nuclear family units perhaps because welfare regulations promote the establishment of separate residences for women with children. While women seek independence, independent living arrangements do not last long for various reasons, one being that the services that kin can provide are needed and these needs are better met in consolidated or extended households. Nuclear family formation and upward mobility are thwarted by kin due to the realization that expectations of kin and a spouse cannot simultaneously be met (Stack 1980). The social setting of poverty may be a determinant of early nonmarital childbearing.

Research on teenage childbearing and infant mortality frequently concludes that it is the young age of the mother that is the detrimental determinant of high infant mortality rates among this age group (Miller & Stokes, 1985, Knodel & Hermalin, 1984). Teenaged females generally weigh less and may have smaller, incompletely expanded pelvises than older females; and these biological realities may make it harder to produce normal-weight or full-term deliveries. Geronimus (1987), however, criticizes this association as being oversimplified by researchers using simple correlations that do not control other possible contributing factors of infant mortality. Rather, Geronimus hypothesizes that, (especially in developed countries such as the United States) not only early childbearing but also high infant mortality are responses to social disadvantage. In other words, teenagers should not be inferior childbearers because of their youthful

age; but the disadvantages of poverty associated with teenage parenthood convert this superiority into inferiority.

Referring to her own research in 1986, Geronimus (1987) argues that whatever biological disadvantages exist in high-risk populations (e.g., teenage mothers) will not necessarily disappear as women age, but in fact could worsen over time due to prolonged lack of medical care, nutritional inadequacy, poor living conditions and sanitation and excessive stress. If this is true, then infants of older women may be at greater risk than those of younger women. Her research did in fact show that primapara mothers aged 24-34 had higher neonatal mortality rates than white teenagers above the age of 14 and black teenagers above the age of 16. These results are of particular interest since a portion of the older black women were socioeconomically advantaged. Another point of interest in this research is that the largest disparities of neonatal mortality between white and black women are at the ages of 24-29 which have been thought to be optimal ages for childbearing. It can now be understood (at least from this research) that it may not be high rates of teenage childbearing among blacks per se that are causing the difference in neonatal mortality between the races.

The hypotheses of Geronimus are also supported by the research done by Merritt et al. (1980). Merritt et al. (1980) found that "fetal-growth-retarding behavioral

conditions," (the incidents of smoking, alcohol use, gonorrhea, and other health factors) were significantly higher among teenage mothers; but when these factors were controlled, there were no differences in low birth weight rates or in prematurity of infants born to teenage mothers and mothers aged 20-34 years old. The conclusion of this study was that teenage mothers were not at a biologic disadvantage to bear children. Research by Rothenberg & Varga (1981) also supported the above work in finding adolescent mothers to have a biological advantage in childbearing. The above research helps to understand the whys and wherefores of low birth weight when national statistics show that low birth weight for blacks (12.5%) is more than double that for whites (5.6%) with the exception of infants born to white women under 15 years of age.(Monthly Vital Statistics Report, 1988. pg. 28-9)

The real test of any research that is limited to a geographical area, as was the case with Geronimus (three states), Miller and Stokes (counties in the US with IMRs of 20 or more deaths averaged over a five year period), and Merritt et al. (national neonatal data and data from two medical centers), is to redo the study using another aggregate and see if the findings hold constant. Not only does the Southern region of the United States have a higher IMR (for both blacks and whites) than any other region in the country, but there are also racial and low-birth-weight variations in IMR across regions (Allen et al., 1987, Marks

et al., 1987). Black infants are at the least risk in the West; however, black IMR is about twice that of whites in all regions. By using women from all regions who responded to the 1982 National Survey of Family Growth, I can maximize social and geographic heterogeneity.

While region of the country is of importance, the geographical designation of rural versus urban areas is important as well. For instance, Geronimus (1986, pp. 1420), has found a higher likelihood of adverse pregnancy outcome if a woman lives in a rural area, especially if she is white.

Another factor that needs to be controlled for is marital status at time of delivery. Korenbrot (et al. 1989, pp. 100) found that marital status was not correlated with birth weight in a San Francisco control group: however, Cramer (1987) found that more white babies survive if their mothers are married, although for the infants of non-white mothers, marriage had the reverse affect. Geronimus (1987) argues that black teenaged mothers, when they marry, cut themselves off from an extended network of kin that could provide the kind of help that would promote infant survival. If marriage is more socially necessary when a pregnancy occurs among whites (Stack), perhaps more help from kin is forthcoming to white teenaged mothers who conform to social norms than to those who do not marry.

Women who give birth as teenagers tend to have lesser amounts

of education than women who give birth at older ages. Thus, it may be low levels of maternal education and not maternal age at birth that put the infants of teenagers at greater risk. There are those who argue that it is inappropriate to stress education, specifically the completion of high school, for those under the age of 18 (Morris, 1981) as it measures them against a standard (high school completion) that they normally would not have achieved by that age. It is important to remember that non-completion of high school is not synonymous with high school dropout and not to attribute dropout characteristics to the teenaged mother.

Caldwell (1983), has argued that education does in fact have an impact on the chances of child survival. It may not be the learning of the three R's that is of importance (although being able to read directions on a prescription bottle or to understand doctors' orders is important) as much as it is the learning of such things as hygiene. The simple act of washing hands may in and of itself protect infants from contaminants that could lead to serious illness and death. Due to the fact that studies have found a correlation between maternal education and IMR, (Pampel & Pillai, 1986), this study will also use maternal education as a control variable.

Late, limited, or no prenatal care has been shown to have an adverse affect on pregnancy outcomes (Geronimus, 1986, pp 1420). Wiener and Milton (1969, pp. 262-269) found that the timing of prenatal care, especially for black women, was

associated with birth weight (even more so than was socioeconomic status or the marital status of the mother); the later the timing of prenatal care, the more likely there would be a low-birth-weight birth. In a study done by Greenberg (1983, pp. 799) the results confirm the above study and also show that the lower the educational level, the more likely there will be low-birth-weight births.

Receipt of government assistance (ADC) does not insulate against low-birth-weight (Lewis et al 1973 pp. 979). However, intervention programs can help in averting low-birth-weight. In one such program which instituted a teen pregnancy case management program called TAPP (Teenage Pregnancy and Parenting Program), teenagers who went through the program had fewer low-birth-weight babies regardless of race, gender, or parity (Korenbrot et al. 1989, pp. 100) The results of this program strengthen the case that nonbiological factors determine low-birth-weight.

The important issue to keep in mind is the necessity to control nonbiological factors placing infants born to teenagers at graver risk so that these factors will not be confounded with the pure effect of maternal age at birth on infant mortality risk. In the present study low birth weight will be used as an indicator of infant mortality risk.

METHODOLOGY

The present research will examine the effect of maternal age at first birth upon the birth weight of first-borns. Several factors possibly confounding this effect will be controlled. These factors are poverty, marital status, region, mother's education, prenatal care, race, and urban/rural residence. The effect of each control variable on birth weight will be assessed by using correlation and multivariate analysis.

The data set for this study is the 1982 National Survey of Family Growth (Cycle III). Cycle I and II (1973 and 1976 respectively) of the National Survey of Family Growth included all ever-married women. Never-married women were included only if they were currently living with their biological offspring. The exclusion of women on marital grounds would seriously distort the analysis of low-birth weights. First of all, Cycle I & II data were biased by excluding never-married mothers whose children were no longer living with them and would also be more likely to exclude teenaged women whose infants had low-birth-weights and died early. Determining the incidence of low birth rates by race would also be problematic due to the fact that white teenaged women are more likely to marry the father than black teenage women and be eligible for inclusion in Cycles I and II. Cycles I and II also excluded never-married women (more often white than black) who placed their children for adoption. These rules of inclusion, thus were more likely to retain

infants of higher birth weights who survived to live with their never-married teenaged mother and to exaggerate the racial disadvantage between blacks and whites in birth weights by disproportionately excluding unmarried white mothers. A data set was needed that would include low-birth-weight births regardless of survival status and regardless of mothers' marital or custodial status. Cycle III (1982) of the National Survey of Family Growth met these criteria.

Cycle III was a carefully drawn five-stage area probability sample (in the conterminous United States) in which teenaged and black women were over sampled. (For more information on the sampling technique and details of estimation procedures, see National Center for Health Statistics, 1984:585-620 Cycle III manual.) The response rate to the survey was 79.4%, ending with 7,969 respondents. This represents a 4.8% excess of the 7,505 interviews needed for the survey (pp. 21).

HYPOTHESIS

Controlling the effect of each control variable on birth weight is to determine whether the higher risks faced by infants born to teenagers arise solely from the more disadvantaged social and economic environments that teenaged mothers face. I will argue, along with Geronimus (1987), that a very young maternal age at birth *per se* poses no biological threat to the newborn but that these threats arise from the social and economic disadvantages that weigh more

heavily on teen mothers. These proposed relationships can be formally stated as follows:

Hypothesis: When the control variables (Table 1) have been held constant, children born to teenaged mothers will not have lower birth weights than children born to older women.

TABLE 1

VARIABLES IN ANALYSIS ACCORDING TO TYPE

Control Variables	Independent Variable	Dependent Variables
Poverty	Maternal Age (at birth)	Birth Weight
Marital Status (at birth)		
Region		
Mother's Education		
Race		
Urban/Rural		
Prenatal Care		

MEASUREMENT OF VARIABLES

This research is limited to first, singleton, live births to women who had not reached their thirtieth birthday prior to that birth. Limiting the research to firstborn singletons will control for the fact that there appears to be a curvilinear relationship between infant mortality and birth order (Knodel and Hermalin, 1984) and that multiple-birth deliveries are more prone to low birth weights and infant mortality (Strauss et al,1987).

The dependent variable is birth weight and the independent

variable is maternal age (in years) at that birth. In order to test the hypothesis that it is not maternal age that is affecting birth weight, but rather social factors, seven other variables will be controlled for: Race; Prenatal Care; Marital Status; Education; Poverty; Region; Urban/Rural.(Table 1)

The value of the dependent variable, birth weight, was calculated from two variables. In the survey one question asked respondents for the birth weight in pounds of her offspring and the next question asked for the ounces. The SPSSX program converted the pounds to ounces, added the conversion to the ounces and was then divided by 16 to arrive at a pound and fraction of a pound figure to use in the data analysis. If a respondents' file did not have the exact birth weight in pounds and ounces, but did have information on the birth weight category (low or not low), it was assigned the mean known birth weight in that category (low, not low) according to race and age. Infants who weighed more than 5.51 pounds at birth were counted as normal weight babies. Infants weighing 5.50 pounds or lower counted as low-birth-weight infants. Infants weighing more than 12 lbs. 15 oz. were excluded from the study due to possible risks from very high birth weight.

Maternal age at birth (the independent variable) of the respondent is of utmost importance in this research. Thus, women who had not yet had a first live birth were excluded.

The research is also restricted to women who had not reached their thirtieth birthdays before their first live birth. The age limitation of under thirty years is done in order to be stringent and not allow for the possible negative affects of giving birth at older ages. This age ceiling will also act to cut off the top of the curvilinear pattern found in other research when correlating maternal age with birth weight or infant death (Knodel & Hermalin, 1984). This pool of women was divided into two age-at-birth categories: females who had not reached their twentieth birthday are considered "teenaged women"(coded 0) and women who fell between the ages of twenty and twenty-nine are counted "adult women" (coded 1).

Below are listed the seven control variables.

In order to compare this work to the bulk of other research, only the classifications of "Black" (coded 1) or "White" (coded 2) are included. Respondents reporting other ethnic or racial identification are excluded. This variable is a self report of the respondent's race which is more reliable than race reported by researcher's observation.

Prenatal care was measured by looking at the timing of prenatal care and the regularity of prenatal care visits. If the woman received prenatal care within the first trimester and visited the doctor at least once a month during the pregnancy, then she was considered to have "good" prenatal

care. If the woman received prenatal care after the first trimester or not at all, and did not have monthly checkups, then she was considered to not have good prenatal care. A question in the instrument directly asked how many months pregnant the woman was at the first prenatal visit, during the first fertile pregnancy. Another question asked how regularly the respondent had prenatal visits in that pregnancy. These two variables were combined to create the mothercraft variable, which was dichotomized as good (coded 1); not good (coded 0).

A straightforward question on the survey asked if the respondent was married at the time of her first birth. Formal marriage is the only category used. If the woman reported a marriage to be informal, marital status was counted as being not married at the time of the birth in question. Thus her marital status at first birth was scored: not married (coded 1); married (coded 2).

Each respondent was asked about her education allowing for answers from no formal education up and beyond 17 years of formal education. Of interest is the completion or non-completion high school. This variable was scored: not high school graduate (coded 1); high school graduate or more (coded 2). It should be noted that this variable is referring to the mother's education at the time of the interview, not at the time of her first live birth.

Respondents were shown a card listing money amounts and asked which amount represented their total combined household income for the previous twelve-month period. Based on the number of household members and the total combined income for that unit, the level of income was calculated as a percent of the poverty level. The population in this study was dichotomized: those whose household incomes were 100% or less of the poverty level (coded 0); and those whose household incomes exceeded the poverty level (coded 1).

Region of residence at interview was dichotomized: Northeast, North Central, or West (coded 1); the South (coded 2). The rationale for doing this is that the South has a higher occurrence of at-risk births than the other regions of the country. Other than region of country, the residence at interview (1 = urban, 2 = rural)is considered in order to determine whether rural whites are at greater risk of adverse pregnancy outcomes (Geronimus, 1987). The two variables on residence could not be obtained for the time of the birth.

The variables were dichotomized, as described above, for running descriptive and chi-square statistics. Birth weight, maternal age at first birth and education were not dichotomized for either the correlation or the multiple regression analysis.

The 1982 National Survey of Family Growth over sampled blacks

and teenagers deliberately. Thus the population weight for each case was the multiplicative inverse of its sampling fraction. The standardized population weight for each case was its population weight divided by the mean of all weights. Each case included in this analysis was weighted with its standardized population weight so that means, percentage distributions and regression coefficients would be generalizable to the national level, while not distorting measures of statistical significance.

RESULTS

This analysis is based on 817 first-born singletons, born in 1979-1982, with valid data on variables of interest to this study. (Table 2). Teenaged mothers were not much more likely than mothers aged 20-29 at the birth to be living in rural or Southern places in 1982. However, women who gave birth as teenagers were more likely to have faced the social disadvantages of being unmarried at the birth, of not being high school graduates, of living below the poverty line at interview and of not receiving timely prenatal care (as compared to women aged 20-29 at first birth). These greater disadvantages make it more plausible that the higher incidence of low-birth weights to teenaged mothers reported in past research arose not from their biological immaturity but from the social disadvantages just mentioned.

TABLE 2

DESCRIPTIVE STATISTICS OF STUDY SAMPLE & CHI-SQUARE STATISTIC

	MATERNAL AGE AT FIRST BIRTH TEENAGED	AGED 20-29	CHI-SQUARE
RACE			
Black	65 (27.5%)	58 (10.0%)	
White	172 (72.5%)	522 (90.0%)	40.5***
Total	237	580	
BIRTH WT			
Low Weight	19 (8.0%)	39 (6.7%)	
Normal Weight	218 (92.0%)	541 (93.3%)	159.0***
POVERTY			
In Poverty	111 (46.9%)	67 (11.55)	
Above Poverty	126 (53.1%)	513 (88.45%)	124.2***
MARITAL STATUS AT BIRTH			
Not Married	161 (67.6%)	90 (15.5%)	
Married	77 (32.4)	490 (84.5%)	215.1***
EDUCATION			
Not HS Grad	135 (56.7%)	66 (11.4%)	
HS Grad	103 (43.3%)	514 (88.6%)	187.0***
PRENATAL CARE			
No	67 (28.4%)	65 (11.2%)	
Yes	177 (71.6%)	515 (88.8%)	36.9***
RURAL/URBAN			
URBAN	151 (63.7%)	349 (60.25%)	
RURAL	86 (36.3%)	231 (39.8%)	0.9
SOUTH/NON SO			
Non-south	143 (60.2%)	369 (63.6%)	
South	95 (39.8%)	211 (36.4%)	0.8

*** = $p < 0.001$. All Chi-squares have one degree of freedom.

In Table 3, the mean birth weights in the low weight category are lower for both black (4.808) and white (4.616) adult women than for their teenaged counterpart (4.960 and 4.747 respectively). Within the normal birth weight category black (7.298) and white (7.595) women aged 20-29 had higher mean birth weights than their teenaged counterpart (7.116 and 7.448 respectively). Although the mean birth weights within the birth weight categories do not vary dramatically, it is interesting to note that infants born to white adult women averaged the lowest birth weights of any other group. On the other hand, white women 20-29 years old, fared the best in the normal birth weight category.

TABLE 3

MEAN BIRTH WEIGHT BY RACE AND AGE AT BIRTH

	BLACK TEENS	BLACK 20-29	WHITE TEEN	WHITE 20-29
LOW WT	4.960	4.808	4.747	4.616
NMW WT	7.116	7.298	7.448	7.595

Table 4 indicates that the correlation between maternal age at first birth and birth weight is statistically significant ($r = 0.09$). But it is important to remember at this point that Geronimus contends that it is this kind of simple correlation that has been used in the past to connect maternal age and low birth weight.

There are three other variables that were significantly

correlated with birth weight at the .05 level: race, marital status at birth and poverty status. An infant had a higher birth weight if it had any one of these characteristics: a mother who was white (r =.15), married at the birth (r=.14), or living above the poverty level at interview (r=.10) That age at birth had the weakest correlation with the birth weight made it more plausible that the effect of mother's age at birth would vanish when the other three variables were controlled.

TABLE 4

CORRELATION OF BIRTH WEIGHT WITH CONTROL VARIABLES

	MATERNAL AGE AT BIRTH	EDUC	POVERTY	REGION	RURAL	RACE	PRENATAL CARE	MARITAL STATUS
r =	.0865	.0497	.0956	-.0126	.0037	.1521	.0154	.1437
N* =	817	817	817	817	817	817	817	817
P =	.013	.156	.006	.720	.916	.000	.660	.000

* THE ACTUAL N IS 815, THE WEIGHTED N, DUE TO ROUNDING IS 817

The logarithm of birth weight was graphed and did not display any linear trends. Thus, we regressed birth weight on the eight variables of Table 4. It is evident from the multivariate analysis (Table 5) that the 8 predictor variables do not account for very much of the variance in birth weight (3.9%). However, looking at the Beta results to see which variables had the greatest influence on birth weight, race (ß = .112, t =.2932) had the strongest impact followed by poverty (ß = .083, t =2.115). These two control

variables were significant at the alpha level of .05. Marital status was not significant at the .05 level. It is plausible, given the fact that black females are much less likely than white females to be married at their first live birth, that the lower birth weights to firstborns of unwed women symbolized their disadvantages of race and poverty. The other variables, (education, rural/urban residence, region of residence, prenatal care, and maternal age

TABLE 5

MULTIPLE REGRESSION OF BIRTH WEIGHT ON MATERNAL AGE AND CONTROL VARIABLES

VARIABLE	SE B	BETA	T	SIG T
MARITAL STATUS	.117564	.080807	1.826	.0683
RACE	.131200	.112320	2.93	.0035*
EDUCATION	.115788	.012341	.303	.7617
RURAL	.088131	- .025189	-.718	.4727
PRENATAL CARE	.121878	- .031234	-.853	.3942
REGION	.089580	.020215	.571	.5680
POVERTY	.116207	.082810	2.115	.0347*
MATERNAL AGE AT BIRTH	.014898	- .007474	-.168	.8670

R^2 .03913
N 815
* - SIGNIFICANT LE .05 ** - SIGNIFICANT LE .005

at birth) are not statistically significant. Therefore, the null hypothesis, that there is no relationship between maternal age at birth and birth weight, can not be rejected, which upholds the arguments of Geronimus and the hypothesis of this research.

DISCUSSION

This study tested Geronimus' hypothesis that when social and economic variables are held constant, being a teenaged mother should not be detrimental to a child's birth weight, as the biological hypothesis would have us believe. Because the 1982 National Survey of Family Growth was the first to select women respondents without requiring them to be ever-married women or never-married mothers, it overcame the biases of previous data sets which tended to exaggerate the birth-weight disadvantage of black infants. For this reason, the analysis was based on the 1982 NSFG. The simple correlation revealed a statistically significant positive association between a mother's age at birth and the child's birth weight, but this association vanished when her poverty status at interview and her race were controlled in a multiple linear regression. These findings could not dispute Geronimus's claim that the health risks of infants born to teenagers do not arise from the mother's youth but from the social disadvantages that attend youthful childbearing.

The results of any research are as reliable as the data from which they have been drawn and there are cautions and limitations to the research reported here.

There are several potential problems with the poverty variable in this study. The household income was measured at the time the survey was taken and not when the pregnancy started or during the course of the pregnancy. It is

possible that, for some women, their incomes were not constant over time causing measurement error. Another potential problem is that an indicator of how medical care was paid for was not used in the present study. It is possible that women who have private insurance coverage may bear infants at less risk than women who use welfare funds or clinics.

The NSFG points out that the poverty variable is potentially problematic due to the high level of missing data. However, because these figures are used for policy making analysis, the NSFG compared those receiving food stamps and other aid to those who did not receive any aid. They found the data to compare favorably with reports (Population Reports, Series P-60, No. 140) from the Population Survey, 1982. (pp. 12) The population in this study was dichotomized with one group representing those living below the poverty level and the other group being better off with income means above the poverty level. This is a somewhat problematic division due to great variation in income above the poverty line, but on the other hand those who are low enough in poverty to receive governmental assistance may have more access to the medical care system than some of those who are still below the poverty line or those above the poverty line who are still poor and fall through the social services cracks. Another associated problem is that this is a national survey and welfare qualification across states varies. A future study should be conceptualized that could take into account

absolute deprivation as a definition of poverty and control for access to health care, food, and shelter.

There is another potential problem that might have biased the data. In the case of the teenaged respondents, parental/guardian permission had to be obtained. However, when queried, the National Center for Health Statistics in Hyattsville, Maryland, said that the refusal rate of the parent or guardian for teenaged women was 6.0%, while the teenaged women themselves refused 6.2% of the time. Therefore, we do not need to be concerned with a possible bias as the over all refusal rate for teenagers was 11.8% compared to 16.5% making teens more accessible than the over all sample. Interviewing never married, teenaged girls who had never assumed a maternal role to a child she had born, was a methodological innovation in Cycle III. The methodological lesson is that it is in fact easier to interview such young women

Race and poverty held to be the most important indicators of birth weight. This finding supports Geronimus (1987) in her argument that early childbearing, low-birth weight and infant mortality are responses to social disadvantage. If blacks are disproportionately poor, compared to whites, their rates of teenaged pregnancies and poor birth outcomes will be above disproportionately higher. These findings indicate that it is the alleviation of poverty and the inherent socioeconomic disadvantages of living in poverty that is needed to lower

the incidence of teenaged childbearing and negative birth outcomes.

More research is needed using a better measure of poverty in order to understand the mechanisms relating it to birth out come.

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