Segregation, Poverty, and Empowerment:
Health Consequences for African Americans

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The past three decades have brought important changes to America's racial landscape. Most notably, African Americans have gained control of the political and policy-making apparatus of many of America's major cities. Further, we have witnessed the development of a growing black middle class. These facts are undeniable. Their legacy, however, is uncertain.

Despite apparent advances, many problems persist. The data speak loudly to the existence among African Americans of greater social and health problems than among their white compatriots. African Americans have higher rates of unemployment, illiteracy, unwed and teen births, low birthweight, homicide, and infant mortality. In a 1985 essay, John McKnight labeled these facts "an inventory of health costs of powerlessness." How can we reconcile these grim realities with recent black social, political, and economic gains? In other words, what are the health consequences of black social and political progress?

Social Factors and Infant Mortality

It has become the dominant view among medical sociologists and demographers that improvements in the general standard of living are the
primary reason for the impressive declines in infant mortality in indus-
trialized societies. Observations of the effect of societal factors on morta-
tality rates surfaced as early as the first decades of the twentieth century
(Newsholme 1910). Studies demonstrating the impact of social forces on
mortality can be found among the earliest works in sociology (Durkheim
1897). René Dubos’s (1959) study is perhaps most closely associated
with this perspective. However, numerous other examples exist in both
the social and the health sciences literature (Mckeown 1976a,b; Illich
1975; McKinlay, McKinlay, and Beaglehole 1988, 1989; McKinlay and

Based on his cross-national examination of the effects on mortality of
improvements in the standard of living, Preston (1975) found a declin-
ing marginal return on increasing increments in standard of living. There-
fore, it would seem that further declines in mortality in industrial-
ized societies are dependent on medical technology. However, Wise
and colleagues’ (1988, 1990) examination of more recent experiences in
Boston suggests that, as medical technology approaches its maximum
utility in reducing infant mortality, social factors will reclaim the central
role in producing infant deaths. It stands to reason that the most vul-
nerable populations would be most severely affected.

Since the United States began to collect race-specific data, the black
infant mortality rate has consistently been reported to be double the
white rate. This suggests that over the years African Americans have
experienced consistent and invariant deprivation relative to whites. Fig-
ure 1 shows that, whereas infant mortality rates for both black and
white Americans have declined since at least 1940, little progress has
been achieved in reducing the black–white relative rate.

However, the relationship between race and infant mortality is more
complex than the persistent 2:1 ratio displayed in figure 1 would sug-
gest because the spatial variation in the black–white relative infant mor-
tality rate is also substantial.

Figure 2 shows the distribution of the black–white five-year infant
mortality differential ratio (relative rate) aggregated over the years
1981–1985 for all U.S. cities of 50,000 or more that are at least 10 per-
cent black. The analysis displayed in figure 2 indicates that the degree
of black-to-white relative disadvantage varies substantially across the cit-
ies. The figure shows a leptokurtic normal curve. The black–white in-
fant mortality ratio ranges between .56 and 5.02, and in eight cities
there is a higher infant mortality rate for whites than for blacks. Cities range from having an infant mortality rate that is lower among blacks than whites to having a rate that is more than triple among blacks than whites. In one extreme outlier, Kenner, Louisiana, the black infant mortality rate is five times the white rate. (This outlier was excluded from the figure, but was included in all analysis.) The list of cities examined in this study, along with their infant mortality rates and black-white ratios, is displayed in the appendix.

Perhaps social factors in these cities have had a differential impact on African Americans and whites. If so, elucidating these factors may help to identify areas of potential for intervention. By successfully manipulating them, we may bring about a reduction in the current black-white disparity in infant mortality. I propose to examine three social factors: racial residential segregation, poverty, and black political empowerment.

Racial Residential Segregation

... one Black, one White—separate and unequal.

U.S. National Advisory Commission on Civil Disorders (1968)

In their 1968 report to President Lyndon Johnson, the National Advisory Commission on Civil Disorders concluded, "Our nation is moving toward two societies, one Black, one White—separate and unequal." More than two decades later there is reason to believe that we are no longer moving toward separation, but, rather, have arrived at the point where racial segregation has become an enduring feature of America's social arrangement (Massey 1990) (see table 1).

In 1987 the U.S. infant mortality rate ranked 17th internationally. However, when the U.S. black-white disparity is viewed within an in-
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TABLE 1
International Comparisons of Infant Mortality Rates, 1986

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>IMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sweden</td>
<td>7.0</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>7.1</td>
</tr>
<tr>
<td>3</td>
<td>Finland</td>
<td>7.6</td>
</tr>
<tr>
<td>4</td>
<td>Norway</td>
<td>8.1</td>
</tr>
<tr>
<td>5</td>
<td>Netherlands</td>
<td>8.2</td>
</tr>
<tr>
<td>6</td>
<td>Denmark</td>
<td>8.4</td>
</tr>
<tr>
<td>7</td>
<td>Switzerland</td>
<td>8.5</td>
</tr>
<tr>
<td>8</td>
<td>Australia</td>
<td>9.6</td>
</tr>
<tr>
<td>9</td>
<td>France</td>
<td>9.6</td>
</tr>
<tr>
<td>10</td>
<td>Spain</td>
<td>10.3</td>
</tr>
<tr>
<td>11</td>
<td>Singapore</td>
<td>10.8</td>
</tr>
<tr>
<td>12</td>
<td>United States-white</td>
<td>11.0</td>
</tr>
<tr>
<td>12</td>
<td>Canada</td>
<td>11.0</td>
</tr>
<tr>
<td>13</td>
<td>Belgium</td>
<td>11.7</td>
</tr>
<tr>
<td>14</td>
<td>Austria</td>
<td>11.9</td>
</tr>
<tr>
<td>14</td>
<td>New Zealand</td>
<td>11.9</td>
</tr>
<tr>
<td>17</td>
<td>United States-total</td>
<td>12.1</td>
</tr>
<tr>
<td>18</td>
<td>German Democratic Republic</td>
<td>12.3</td>
</tr>
<tr>
<td>19</td>
<td>Federal Republic of Germany</td>
<td>12.6</td>
</tr>
<tr>
<td>20</td>
<td>Italy</td>
<td>14.3</td>
</tr>
<tr>
<td>21</td>
<td>Israel</td>
<td>15.1</td>
</tr>
<tr>
<td>22</td>
<td>Jamaica</td>
<td>16.2</td>
</tr>
<tr>
<td>23</td>
<td>Czechoslovakia</td>
<td>16.8</td>
</tr>
<tr>
<td>24</td>
<td>Greece</td>
<td>17.9</td>
</tr>
<tr>
<td>25</td>
<td>Cuba</td>
<td>18.5</td>
</tr>
<tr>
<td>26</td>
<td>United States-black</td>
<td>20.0</td>
</tr>
</tbody>
</table>

Abbreviation: IMR, infant mortality rate.

In international context, the rate for white Americans improves to 12th and the African-American rate drops to 26th. If America has indeed become two societies, then white American society is comparable to other industrialized countries, whereas black American society borders on being a third world nation.

Yankauer (1950) was the first to establish empirically a link between racial segregation and health status. In his analysis of data from New York City in the 1940s, Yankauer observed that infant mortality rates, for both blacks and whites, were highest in the most severely segregated
black neighborhoods. The racial segregation–infant mortality finding has been replicated in more recent national studies. I demonstrated this relationship in an earlier study that analyzed large and midsized U.S. cities (LaVeist 1989). Although I found black infant mortality rates to be higher in highly segregated cities, I discovered that white rates were essentially unaffected by a city's level of segregation. Indeed, white rates dropped only slightly as segregation increased. Jiobu's (1972) path analysis of a somewhat smaller set of cities during the 1960s also demonstrated a link between segregation and infant mortality.

Although the empirical link between segregation and mortality is fairly straightforward, the specific supporting mechanisms for this association are less direct. The body of research on this topic suggests the prevalence of a variety of problematic social conditions in highly segregated black communities. Previous research has established that segregated black urban communities are highly toxic environments (U.S. General Accounting Office 1983; Bullard 1983), which are not as well served by city services (Schneider and Logan 1982, 1985), lack adequate medical services (Law 1985), and have higher housing costs, thus leading to an inflated cost of living (Berry 1976). Thus, segregation can be viewed primarily as an easily quantifiable summary measure of differences in the material living conditions of black and white Americans.

Poverty

The level of living of the masses of Negroes trapped in these densely populated continuously deteriorating ghettos are (sic) not likely to keep pace with "the American way of life."

Killian and Grigg (1964)

Poverty is the best documented social risk factor for infant mortality. Empirical examples of the relationship between them can be found as early as the first decade of the twentieth century (Newsholme 1910). The sheer volume of research supporting a link between poverty or low socioeconomic status and infant mortality is impressive (LaVeist 1990; Paneth et al. 1982; Gortmaker 1979; Brooks 1975; Stockwell 1962). In fact, one author (Anderson 1958) pronounced any further research on the relationship between poverty and infant mortality to be "a waste of time, money and effort, because the gross relationship [had] been established conclusively enough."
It is axiomatic to state that poverty has been an enduring component of the African-American reality. Indeed, some scholars have had difficulty distinguishing the line of demarcation between being black and being impoverished. Some researchers have used race as an indicator of poverty status. It has even been asserted, somewhat controversially, that black-white disparities in infant mortality (and health status in general) can be attributed solely to black-white disparities in socioeconomic status. Others have argued, however, that race is more complex. Status as an African American is not quite the equivalent of being a low-income white American. African Americans have cultural values and behaviors; because of racism, they are exposed to potential health risks that sustain race as a determinant of health status, irrespective of social class.

The resolution of this debate is best left for another occasion. However, for now, the establishment of two important facts is relevant: first, that socioeconomic status is an important social risk factor for infant mortality, and, second, that poverty is more prevalent among African Americans than among white Americans.

Political Power as a Strategy for Health

True liberation can be acquired and maintained only when the Negro people possess power; and power is the product and flower of organization. . . .

A. Phillip Randolph (1937)

Several scholars have speculated that political empowerment might have a beneficial impact on health status (McKnight 1985; Braithwaite and Lythcott 1989; LaVeist 1992). In a letter to the editor of the *Journal of the American Medical Association*, Braithwaite and Lythcott (1989) argued that race differentials in health status were outward manifestations of power differentials and asserted that the feelings of hopelessness and alienation from societal institutions impeded appropriate health and illness behaviors. This, they argued, resulted in poorer health status among African Americans.

In an essay published in the *Canadian Journal of Public Health*, McKnight (1985) maintained that the traditional tools of public health have met with only limited success in improving the health status of disenfranchised groups. Thus, because the highest indexes of poor health were found among groups with the least power, the social and political
empowerment of these groups may lead to new remedies that are more effective in improving their health status.

My empirical examination (LaVeist 1992) supported the hypothesis that political power would affect health status. Black postneonatal mortality rates were lower in cities where African Americans had higher levels of political power; white postneonatal mortality rates were not affected by the level of black political power. Therefore, black political power led to a narrowing of the postneonatal mortality gap between African Americans and whites. The theoretical link between black political power and black postneonatal mortality is shown in figure 3. Tests to determine the mechanisms that create the observed association ruled out the most obvious explanation: that black elected officials might allocate resources in such a way as to benefit African Americans. Rather, the analysis led me to conclude that community organization is the common factor underlying the infrastructure that both facilitates greater black political power and improves the material conditions of African Americans' lives. These improved conditions in turn are manifested in lower black postneonatal mortality rates.

Assessing the Impact of Segregation, Poverty, and Political Power

The research literature contains support for each factor—segregation, poverty, and political power—as an important social predictor of health

![Diagram](image-url)
Segregation, Poverty, and Empowerment

status. Yet how interrelated are these social phenomena in their impact on black-white differentials? I will address this question through an empirical examination of data from cities throughout the United States. Cities were selected for the study that had a population in 1980 equal to or exceeding 50,000, at least 10 percent of which was African American. These selection criteria resulted in a population of 176 cities representing 32 states and all regions of the United States. Data for the analysis were derived from various published sources, including the National Center for Health Statistics, the U.S. Census Bureau, and the Joint Center for Political and Economic Studies.

Infant mortality rate is a long-standing general indicator of overall social and economic development, availability, and use of health services, health status of women of childbearing age, and quality of social and physical environment (Morris 1979). It has been applied for this purpose in studies conducted at various levels of analysis: international (Preston 1975), national (Cereseto and Waitzkin 1986), state (Jiobu 1972; Kleinman 1986), county (Corman and Grossman 1985), and city (Altenderfer and Crowther 1949). The black-white disparity in infant mortality is computed by taking the ratio of black to white infant mortality rates for each city (relative rate). Five-year rates (1981–1985) are used in order to control for possible single-year variations in cities with few births or infant deaths.

Racial residential segregation is measured using the index of dissimilarity for 1980. The index is a measure of the degree of racial residential segregation based on a scale ranging from 0 (no segregation) to 100 (complete segregation). (See White [1983, 1985] or Duncan and Duncan [1955] for a complete empirical and conceptual assessment of this measure.) Poverty rates are based on the percentage of families whose income and family size indicated that their standard of living was below the federally determined poverty level at the time of the 1980 U.S. census. Black political power is the ratio of the percentage of African Americans on the city council to the percentage of African Americans in the voting-aged population for 1983–1984 (Karnig 1976, 1979; Robinson and Dye 1978).

Findings

Figure 4 schematically displays the conceptual model that guided my analysis. I hypothesized that racial residential segregation was an exoge-
nous variable with a causal link to both poverty and political power. Each variable was predicted to be directly related to the black–white disparity in infant mortality. Segregation, furthermore, was hypothesized to be both directly and indirectly associated with the black–white disparity in infant mortality.

To begin the analysis, I conducted a preliminary assessment of the general relationships among the variables by calculating unadjusted correlation coefficients. The results of this preliminary analysis, displayed in table 2, show that residential segregation has a statistically significant association with each endogenous variable except white poverty. In cities

![Diagram of conceptual model]

**FIG. 4.** Conceptual model (IMR, infant mortality rate).

### TABLE 2
Zero-order Correlations

<table>
<thead>
<tr>
<th>Endogenous variable</th>
<th>Residential segregation</th>
<th>Black poverty</th>
<th>White poverty</th>
<th>Black political power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black poverty</td>
<td>.327***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White poverty</td>
<td>-.066</td>
<td>.225***</td>
<td>.116</td>
<td></td>
</tr>
<tr>
<td>Black political power</td>
<td>.259***</td>
<td>.191**</td>
<td></td>
<td>-.121*</td>
</tr>
<tr>
<td>Black infant mortality</td>
<td>.247***</td>
<td>.181**</td>
<td>.060</td>
<td>-.048</td>
</tr>
<tr>
<td>White infant mortality</td>
<td>-.124*</td>
<td>.164*</td>
<td>.188***</td>
<td>.062</td>
</tr>
<tr>
<td>Race disparity in infant mortality</td>
<td>.305***</td>
<td>.047</td>
<td>-.153*</td>
<td>-.048</td>
</tr>
</tbody>
</table>

*P ≤ .1  **P ≤ .05  ***P ≤ .01
with high levels of segregation, a larger proportion of its black population lives below the poverty level. However, a city's degree of segregation is not significantly related to white poverty.

A less deleterious consequence of segregation is reflected in the positive association between segregation and black political power, which indicates that African Americans are better able to achieve political power in highly segregated cities. This finding, which is consistent with Vedlitz and Johnson's (1982) analysis, probably reflects the fact that most cities elect city council representatives by districts. Highly segregated cities more often contain districts that constitute majority black voting blocs, thus improving the likelihood of electing African-American representatives. Because the measure of black political power is based on city council representation, this finding is to be expected.

The relationship between segregation and the black–white disparity in infant mortality replicates analysis published elsewhere (Yankauer 1950; Jiobu 1972; LaVeist 1989). The table indicates a conformation of the findings from these studies, which is that the disparity in black–white infant mortality rates tends to be greater in highly segregated cities.

Table 2 also shows that for both blacks and whites poverty is positively associated with black infant mortality. White poverty is also significantly inversely associated with the black–white disparity in infant mortality: that is, as the poverty rate of whites in a city climbs, the gap between black and white infant mortality rates narrows. This narrowing takes place because the white infant mortality rate is so adversely impacted by white poverty rates. Finally, although the presence of black political power clearly reduces black infant mortality rates, the magnitude of the reduction is not enough to affect the black–white disparity significantly.

It is interesting to note three interrelated findings.

1. Black infant mortality is higher in highly segregated cities.
2. Black political power is greater in highly segregated cities.
3. Black infant mortality is lower in cities with greater black political power and higher in cities with high segregation.

These may, at first, appear to be contradictory findings; however, further analysis reveals that they are not. I have described elsewhere the modifying impact of black political power on the connection between
segregation and black infant mortality (LaVeist 1988). In a highly segregated black community political empowerment can reduce (but not entirely eliminate) the negative consequences of segregation. This finding illustrates the importance of multivariate analysis. The preliminary bivariate (unadjusted) analysis presented in table 2 is instructive; however, it is necessary to conduct multivariate analysis in order to determine if the relationships presented in table 2 persist once the influence of other potentially confounding variables are taken into account.

Tables 3 and 4 present multivariate analysis to examine the relationships outlined in figure 4. Table 3 assesses how segregation is related to black poverty, white poverty, and black political power. Control variables indicating the city's regional location and the natural log of its population are included in each model for two reasons: (1) the relationship between segregation and the dependent variables (poverty and black political power) may vary by region, or (2) the size of the city's population may influence the consequences of segregation on the dependent variables. By "controlling" for region and population it is possible to calculate the adjusted relationship between segregation and the dependent variables.

Table 3 shows that after adjusting for the effects of the other variables in the analysis (listed in the table) the relationship between segregation and poverty has not been affected. Although segregated cities tend to have higher levels of black poverty, white poverty rates are not

<p>| TABLE 3 |
| OLS Regression Unstandardized Coefficients for Black Poverty, White Poverty, and Black Political Power Regressed on Segregation |</p>
<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Black poverty</th>
<th>White poverty</th>
<th>Black political power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>28.14</td>
<td>3.97</td>
<td>.025</td>
</tr>
<tr>
<td>Segregation</td>
<td>.165***</td>
<td>-.497</td>
<td>.012***</td>
</tr>
<tr>
<td>Log of population</td>
<td>-2.64**</td>
<td>.218</td>
<td>-.062</td>
</tr>
<tr>
<td>West</td>
<td>-5.492***</td>
<td>1.397**</td>
<td>.208</td>
</tr>
<tr>
<td>North Central</td>
<td>-2.032*</td>
<td>1.209***</td>
<td>.145*</td>
</tr>
<tr>
<td>Northeast</td>
<td>.092</td>
<td>3.134***</td>
<td>.083</td>
</tr>
<tr>
<td>$R^2$ (adjusted)</td>
<td>.20</td>
<td>.21</td>
<td>.09</td>
</tr>
</tbody>
</table>

Abbreviation: OLS, ordinary least squares.

* $P \leq .1$  ** $P \leq .05$  *** $P \leq .01$
TABLE 4
OLS Regression Unstandardized Coefficients for Black Infant Mortality, White Infant Mortality, and the Black-White Disparity in Infant Mortality

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Black IMR</th>
<th>White IMR</th>
<th>Black-white disparity</th>
</tr>
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<tbody>
<tr>
<td>Constant</td>
<td>14.05</td>
<td>9.31</td>
<td>2.20</td>
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<tr>
<td>Segregation</td>
<td>.065**</td>
<td>-.032**</td>
<td>.012***</td>
</tr>
<tr>
<td>Black poverty</td>
<td>.075*</td>
<td></td>
<td>-.002</td>
</tr>
<tr>
<td>White poverty</td>
<td></td>
<td>.316***</td>
<td>-.034**</td>
</tr>
<tr>
<td>Black political power</td>
<td>-.238*</td>
<td>.093</td>
<td>.018</td>
</tr>
<tr>
<td>Log of population</td>
<td>-.197</td>
<td>.038</td>
<td>-.154</td>
</tr>
<tr>
<td>West</td>
<td>-2.648**</td>
<td>-.647</td>
<td>-.218*</td>
</tr>
<tr>
<td>North Central</td>
<td>1.718**</td>
<td>.976**</td>
<td>-.023</td>
</tr>
<tr>
<td>Northeast</td>
<td>.404</td>
<td>.207</td>
<td>-.018</td>
</tr>
<tr>
<td>$R^2$ (adjusted)</td>
<td>.11</td>
<td>.22</td>
<td>.10</td>
</tr>
</tbody>
</table>

Abbreviations: OLS, ordinary least squares; IMR, infant mortality rate
* $P \leq .1$  ** $P \leq .05$  *** $P \leq .01$

significantly affected by segregation. Also, although African Americans in segregated cities suffer higher poverty rates, they are better able to attain political power. These findings are consistent with table 2. The table also shows that black urban poverty rates are lower in the West and the North Central region than they are in the South. However, white urban poverty rates are highest in the Northeast.

Are these relationships implicated in black infant mortality? The analyses displayed in table 4 show that, after accounting for the effects of the other social factors on black infant mortality, the crude relationships displayed in table 2 have not been eliminated. Black infant mortality is higher in very segregated cities and in cities where there is more black poverty. Black infant mortality rates are lower in cities where blacks have achieved greater political power. Regionally, black infant mortality rates are higher in the North Central part of the country and lower in the West versus the South. It should also be noted that white poverty is far more strongly associated with white infant mortality than black poverty is with black infant mortality. The inverse association between segregation and white infant mortality suggests that whites benefit from segregation. However, the nonsignificant effect of black
political power on white infant mortality suggests that black political gains have not come at the expense of whites (LaVeist 1992).

The model in table 4 shows how the relationships between segregation, poverty, and black political empowerment extend to the black-white disparity in infant mortality. This model indicates that the zero-order associations summarized in table 2 also hold up within multivariate analysis. The black-white gap in infant mortality is greater in more highly segregated cities. The disparity is smaller in cities with high rates of white poverty. However, black poverty and black political empowerment do not directly affect the black-white disparity in infant mortality. The analysis also shows that the black-white disparity in infant mortality is smaller in the West than in the South.

Summary and Discussion

In spite of strong achievements in improving the chances of survival for infants born in the United States, there has been little success in reducing the national black-white differential in infant mortality. The black infant mortality rate has been reported consistently to be double the white rate. However, when the black-white infant mortality disparity is examined within smaller geographic units, a more complex relationship between race and infant mortality emerges. There is, indeed, substantial geographic variation in the degree of black to white relative disadvantage.

Three factors distinguished cities in this analysis: segregation, poverty, and black political empowerment. Because these are potentially malleable social factors, policy and other interventions have the potential to be effective. The association between segregation and the black-white disparity in infant mortality consists of a higher black infant mortality rate and a lower white infant mortality rate in highly segregated cities. Poverty is associated with both black and white infant mortality, but only white poverty is directly related to the differential in black-white infant mortality. Black infant mortality rates are lower in cities where blacks have gained a measure of political empowerment. However, the effect of this power on black infant mortality is not strong enough to significantly reduce the disparity in black-white infant mortality.
Previous findings indicate that, even among middle-class African Americans, race dictates access to neighborhoods whose resources (e.g., schools, medical services, employment opportunities) are commensurate with level of income. They are excluded from neighborhoods where their white middle-class counterparts reside largely on the basis of race (Massey, Condran, and Denton 1987). Villemez (1980) demonstrated that African Americans get a smaller return for their investments in human capital, such as quality of residence and education, than do whites. Thus, black spatial mobility is artificially constrained. Structural barriers mitigate against the link between spatial and social mobility (Massey and Mullen 1984; Park 1926).

The interplay between residential segregation and the political and social organization of cities produces structural constraints that limit black life chances (Massey, Condran, and Denton 1987; Logan 1978). Limitations on black spatial mobility constrain even the more affluent African Americans by restricting their access to employment opportunities (Deskins 1988; Cole and Deskins 1988; Lewin-Epstein 1985; Parcel 1979), relegating their children to inferior schools (Farley 1978; Farley and Taeuber 1974), and exposing them to greater environmental health risks (Bullard 1983; Kitagawa and Hauser 1973). Thus, regardless of economic resources, many middle-income African Americans are forced to live in socioenvironmental conditions that—even superior to those of low-income blacks—are not consistent with their economic status. This finding coincides with the stronger association between poverty and infant mortality among whites than blacks ($b=.375, \beta=.4, P < .001$ for whites and $b=.075, \beta=.12, P < .1$ for blacks).

My analysis suggests the importance of research to explore the city characteristics that lead to the variability in infant mortality rates displayed in figure 2. In none of the models I have presented does the adjusted $R^2$ exceed 22 percent of variance explained. Future research is needed to examine the impact of other correlates of aggregate infant mortality on the black-white differential. Examples of these variables include access to medical technology, quality of housing (Brooks 1975), overcrowded living conditions (Schwirian and Lacreca 1971), quality of medical care under Medicaid (Brooks 1978), and exposure to air pollution (Joyce, Grossman, and Goldman 1989). Corman and Grossman (1985) concluded that the availability of abortion, of neonatal intensive care units, education, Medicaid, community health service projects, maternal nutrition programs, and family planning services has an impact.
on neonatal mortality rates at the county level. However, the topic of black–white infant mortality differences has seldom been a primary concern in published reports.

We can learn important lessons from the characteristics that distinguish cities with a slight disparity in black–white infant mortality rates and cities from those in which a great gulf exists. Discovering more about these characteristics will help to guide policy and to inform intervention that may lead to reducing black–white disparities in infant mortality at the national level.

This line of research is still in the preliminary stages. Ecological data have their limitations, which means that it is of paramount importance to develop strong theory. An instructive line for future research—through qualitative investigations—would be an exploration of the specific mechanisms that link poverty, segregation, and political empowerment with infant mortality.

References


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Appendix 1


<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Population</th>
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Acknowledgments: I am grateful to Sam Shapiro and Barbara Starfield for comments on earlier drafts of this manuscript. Data collection was supported by a grant from the Michigan Health Care Educational and Research Foundation, Inc. (grant # 027-SAP/87-04).

Address correspondence to: Dr. Thomas A. LaVeist, Department of Health Policy and Management, School of Hygiene and Public Health, The Johns Hopkins University, 624 North Broadway, Baltimore, MD 21205.

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Infant mortality rates are based on a five-year aggregation from 1981 to 1985 in order to account for yearly fluctuations, which may occur if single years are used.