THE RACIAL CROSSOVER IN COMORBIDITY, DISABILITY, AND MORTALITY

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This study analyzed one respondent per household who was age 70 or more at the time of the household’s inclusion in Wave 1 (1993–1994) and whose survival status was determinable at Wave 2 (1995–1996) of the Survey on Asset and Health Dynamics Among the Oldest Old (AHEAD Survey). At age 76 at Wave 1, there was a racial crossover in the cumulative number of six potentially fatal diagnoses (chronic lung disease, cancer, heart disease, hypertension, diabetes, and stroke) from a higher cumulative average number for blacks to a higher average number for whites. Also, there was a racial crossover at age 86 in the cumulative average number of disabilities in the Advanced Activities of Daily Living (AADLs), from a higher average for blacks to a higher average for whites. Between Waves 1 and 2, there was a racial crossover in the odds of mortality from higher odds for blacks to higher odds for whites; this occurred at about age 81. The results are consistent with the interpretation that the racial crossover in comorbidity (but not the crossover in AADL disability) propelled the racial crossover in mortality.

A mortality crossover occurs when the age-specific measures of mortality for a less advantaged social group are higher at some earlier point in the life cycle but eventually converge with, and then fall below, the age-specific measures for a more advantaged social group. Such crossovers have been observed for Muslims versus European-origin persons in Algeria; Maoris versus European-origin persons in New Zealand; men living in Beijing versus men living in Jilin Province, China; non-Jews versus Jews in Berlin, Canada, and New York City; and native-born versus foreign-born residents of both Canada and the United States (Nam 1995; Nam, Weatherby, and Ockay 1978; Spiegelman 1948; Swallen 1997; Trovato 1993). In addition, in the United States, a racial crossover from higher age-specific death rates for blacks at the younger ages to higher rates for whites at the oldest ages has been reported throughout the twentieth century (see, for example, Christenson and Johnson 1993, 1995; Kestenbaum 1992; Land, Guralnik, and Blazer 1994; Manton, Poss, and Wing 1979; Thornton and Nam 1968; Wing et al. 1985).

The racial crossover observed in black/white mortality in the United States has been called a mirage and has been blamed on highly erroneous data for age at death on elderly blacks’ death certificates (Preston et al. 1996). Longitudinal surveys offer much more accurate information on the age at death because they allow the researcher to use the respondent’s own report of his or her age at an interview to calculate the age at death after that interview and before the next. The researcher thus is freed from the biased reports of the age at death given by the next of kin to a funeral director who fills out the death certificate. (Such biases would arise because the decedent had publicly exaggerated his or her true age upward or downward during life to the closest kin, or because the closest kin could not recall the decedent’s reported age.) Recent longitudinal surveys of elderly people in North Carolina and Georgia found racial crossovers in black/white mortality (Corti et al. 1999; Hames et al. 1993; Land et al. 1994; Wing et al. 1985), but the regional focus invited the notion that the racial crossover occurs only in the South.

The purpose of this study is to investigate the black/white crossover in mortality among the elderly, by using a nationally representative, longitudinal survey. In the next section I review the two competing explanations of the crossover and state my hypotheses. Then I describe the longitudinal survey and explain its suitability for testing the hypotheses. After presenting the findings, I close by discussing the implications for future research.

EXPLANATIONS OF THE BLACK/WHITE CROSSOVER

The “Illusion” Explanation

There are two competing explanations of the black/white crossover in U.S. mortality. From one point of view, the crossover is an illusion arising from age misreporting on death certificates, which provide the numerators for the age- and race-specific death rates, and on census questionnaires, which provide the denominators (Coale and Kisker 1986; Preston et al. 1996).

For example, Preston et al. (1996) drew a sample of 5,262 death certificates for blacks dying at ages 65+ in 1985. They linked 2,991 of these certificates (= 56.84%) to their census questionnaires in 1990, 1910, or 1920 and 88.1% of the certificates to their records in the Death Master File of the Social Security Administration (SSA). For the 50.5% of the death certificates that were matched successfully to a record in both of the other two data sources, Preston et al. were able to use the information on the three documents to

Demography, Volume 37-Number 3, August 2000: 267–283

267
impute three ages at death. If all three imputed ages at death were the same, that age was taken as correct. If the age at death imputed from the census was younger than the other two, however, the “census age” was taken as true. Among the remaining records, if the reported age matched on only two of the three documents, that age was accepted as accurate. If a person’s age was inconsistent across all available documents, the age reported in the SSA file was taken as true if the SSA year of birth was after 1900; otherwise the “census age” was accepted (Preston et al. 1996:203). When the age-specific death rates were recomputed for blacks after their “correct” age at death had been imputed by these rules, no mortality crossover was evident.

Preston et al. (1996) concluded that ages on blacks’ death certificates were understated by about two years; when this understatement was combined with the depletion in the numbers of age-understatable survivors at the oldest ranks, the result was a spurious image of a racial crossover in mortality. The conclusion drawn by Preston and colleagues is compatible with the report by Christenson and Johnson (1995) of a crossover only among elderly persons with primary schooling or less, because age misreporting ought to be most common among the least advantaged.

Preston et al. assumed that a triple match on a black person’s age indicated the correct age at death, but this assumption disregarded the possibility that all three data sources may have been incorrect. More serious was their failure to impute “correct” ages for whites before comparing whites’ and blacks’ age-specific mortality rates.

This shortcoming did not apply to Kestenbaum’s (1992) study of the racial crossover in mortality as based on the Social Security Administration’s Master Beneficiary Record (MBR), a universal population register of all persons age 65 or older who receive either form of Medicare: Part A (hospitalization insurance, which is free to anyone in this age range) or Part B (medical insurance to cover physicians’ fees, which is available to anyone age 65 or older if they pay a monthly premium). Kestenbaum preferred the Medicare Part B portion of the MBR because automatic termination of Part B upon nonpayment of the monthly premium and notation of the reason for termination would help researchers to pinpoint more accurately the fact and the time of death. Similarly, it appears that data on the fact and the date of death are recorded more promptly in the MBR for those who are earnings-eligible beneficiaries (the “insured”) than for those who are auxiliary beneficiaries because of a family relationship to the insured. In addition, the data forwarded to MBR by the Railroad Retirement Program on persons eligible for its benefits are viewed as more vulnerable to errors than any other subset of MBR files because of communication errors that occur in data sharing between federal agencies. Finally, the Social Security Administration maintains the Numident file, which records applications for Social Security numbers requiring proofs of birth date and which houses death records assembled by the SSA. Kestenbaum preferred the birth date stated in the Numident file if it was later than that reported in the MBR; he preferred the Numident death information if the MBR reported no death or a later age at death.

Following these guidelines, Kestenbaum (1992:572) constructed a specialized population subregister of the primary (earnings-eligible) beneficiaries in the MBR who were enrolled in Medicare Part B but not in the Railroad Retirement Program, and conservatively enhanced information on the fact and the age at the beneficiaries’ death by resorting to the Numident file. He found a lower mortality rate for blacks than for whites starting at age 87 for men and 88 for women in 1987. Assembling the very same population subregister from a more recent period (1990–1993), Parnell and Owens (1999) found a racial crossover in mortality at age 86 for both sexes. In comparison with other ways of constructing universal subregisters of the U.S. elderly population, Kestenbaum’s method offered the highest age-specific mortality rates at the oldest ages (85+) and the latest age at death (104) before implausible declines in mortality at older ages. Because his results corresponded closely to those of Parnell and Owens, the mortality crossover seemed genuine. In other words, Kestenbaum (1992), Parnell and Owens (1999), and Preston et al. (1996) agreed that death certificates undercount events at ages above 85, but they disagreed on the severity of the error.

Manton and Stallard (1997a:69–73) recommended the method of extinct cohorts for computing the race-sex-specific probabilities of death at various single years of age (\(q_x\)’s) and applied it to U.S. death certificate data from 1960 to 1990. In this method, the probability of dying at age \(x\) is computed as the quotient obtained from dividing the number of deaths at age \(x\) by the number of deaths at this age plus all later ages in all later years. The ratio reduces the impact of underreporting the age at death by allowing the error to appear both in the numerator and in the denominator.

Calculating these \(q_x\)’s by race and sex for the cohorts born in 1882, 1887, and 1892 for ages between 68 and 108, Manton and Stallard discovered a racial crossover in mortality for both sexes in these three birth cohorts at age 81, much younger than the crossover ages calculated by Kestenbaum (1992) and Parnell and Owens (1999). Manton and Stallard concluded that their calculated crossover age was plausibly younger because they had accounted for the recent secular decline in mortality, which has occurred only among whites.

Because Manton and Stallard relied on death certificate data, let us further consider the extent of errors in age at death that derive from this source. Proxies’ reports of decedents’ ages to funeral directors filling out the death certificates appear to be less accurate than the decedents’ self-reports of age before death (Rogers, Carrigan, and Kovar 1997). Similarly, proxies make mistakes in responding to health surveys on behalf of target respondents who are too seriously ill to reply for themselves (see Clark and Gibson 1997). For these rea-

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1. For proof of age eligibility, the applicant for Medicare or Social Security benefits must submit a public or religious record established before he or she was five years old. In its absence, the applicant must prove his or her age by submitting a combination of other records: an application for a Social Security number, school records, medical records, or census records (see Kestenbaum 1992:566).