Center for Health Statistics

NEW JERSEY DEPARTMENT OF HEALTH AND SENIOR SERVICES

TOPICS IN HEALTH STATISTICS
August 2002 02-02

ESTIMATES OF HEALTHY LIFE EXPECTANCY IN NEW JERSEY FOR SELECTED RACE/SEX SUBPOPULATIONS, 1996-1998

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Abstract

Health agendas for the year 2010 for both New Jersey and the nation include a goal to increase the quality and length of healthy life. This report uses a technique, which combines measures of morbidity and mortality, to derive a summary estimate of healthy life expectancy. The data used in this methodology are available from the state file of death records and from the results of the Behavioral Risk Factor Surveillance System surveys in New Jersey. Application of the statistical technique results not only in average life expectancy by age for each of four major race/sex populations in New Jersey, but also the average number of healthy years of life expected at each age. The overall life expectancy at birth for a newborn in New Jersey in 1996 through 1998 was 77 years, but there was considerable variation in this number, depending on race and sex. White females had the highest life expectancy of the groups examined (80.1 years) and black males had the lowest (68.0 years). White females also could look forward to the highest average number of years in "good" health (self-perceived excellent, very good, or good health) at birth (69.6 years) while black males could expect 53.9 years of "good" health, on average. As the population continues to age and the average life expectancy increases, methods of assessing quality of life will become more critical. The method presented here can be updated as needed, due to the availability of the data and the ease of computation.

Introduction

In January 2000, the U.S. Department of Health and Human Services released its current set of health objectives in *Healthy People 2010*[1], the document encompassing the health agenda of the nation for the first decade of the twenty-first century. This agenda consists of two broad goals and 467 measurable objectives, all with the overarching purpose of "promoting health and preventing illness, disability, and premature death". The two overall goals of *Healthy People 2010* are (1) to increase quality and years of healthy life; and (2) to eliminate health disparities. New Jersey, like most other states, adopted the concept of a detailed health agenda as

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promulgated in *Healthy People 2000*[2] and developed a set of objectives customized to address the state's specific health needs for the 1990s. The current health agenda for this state is contained in the document, *Healthy New Jersey 2010: A Health Agenda for the First Decade of the New Millennium* (Volumes I and II).[3] For this process, New Jersey has adopted the two overarching goals of *Healthy People 2010*: to "increase the quality and length of healthy life, and eliminate disparities in health outcomes based on race and/or ethnicity". Health disparities in New Jersey have been addressed in another report in this series.[4] This report will focus on methodology for calculating healthy life expectancy as a measure of length of healthy life and will present estimates of these measurements for the major race/sex subgroups in New Jersey.

The common goal in *Healthy People 2010* and *Healthy New Jersey 2010* to increase the quality and years of healthy life "targets not only a continued increase in life expectancy (dependent on reduced mortality), but also an improvement in the percent of life lived with good health (dependent on reduced morbidity)".[5] Life expectancy at birth increased dramatically in the United States during the first half of the twentieth century, from 47.3 years in 1900 to 68.2 years in 1950.[6] This represents a gain of 44.2 percent in the average expected years of life. The improvement in life expectancy slowed considerably in the second half of the century: a gain of 12.5 percent in rising from 68.2 years in 1950 to 76.7 in 1998. The average life expectancy has continued to expand into the twenty-first century, however at a slower rate of increase. The addition of almost 30 years to the average lifetime has raised critical questions about the health-related quality of these additional years.

Although life expectancy at birth has increased for the total population and for each of the population subgroups, disparities by race, ethnicity and gender still exist. Females have a longer life expectancy than males and whites live longer than blacks. There are projections that the gap will narrow between life expectancy for males and females living in developed countries, since the life expectancy for females is so high that it may be near its maximum and continued substantial improvements in life expectancy would be expected only for males.[7] This has already occurred nationally, to a limited degree. During recent decades, the difference between life expectancy at birth for males and females decreased from 7.4 years in 1980 to 6.0 years in 1996. Due to the emergence of HIV infection and other factors, the gap between white and black life expectancy has varied over the same period but stood at a slightly higher level in 1996 (6.6 years) than the difference in 1980 (6.3 years).

There is not clear agreement as to what constitutes optimal quality of life. A recent study of persons 85 years and over in the Netherlands reported that this population views successful aging as a process of adaptation and places a higher value on well-being and social functioning than on physical and psychocognitive functioning. [8] It also is not clearly understood how the declining mortality rates, which led to increased life expectancy, have affected morbidity, particularly in the older population. Different schools of thought are that (1) there has been a compression of morbidity, as morbidity was "pushed" to the last years of life; (2) improvements in health care have saved more lives, rather than prevented disease or utilized medical care to delay functional consequences of disease; or (3) deterioration due to disease has abated and chronic diseases are of milder character leading to a better quality of life.[6] These issues will continue to be studied, but, in the meantime, interest in a summary measure that combines mortality and morbidity data to represent overall health in one number has resulted in the development of a number of techniques to estimate health-related quality of life. In this report, one of these techniques will be used to combine life table methodology with self-perceived health status to estimate healthy life expectancy for the major race/sex groups, as well as for the total population of New Jersey.

Method

A number of methods for providing measurement of quality of life have been proposed. On the national level and in a few states, there has been effort directed toward development and utilization of measures of health-related quality of life. Some of these measures include, in addition to the Years of Healthy Life discussed here, Quality-Adjusted Life Expectancy (adjusted for both physical and mental health status) and Disability-Adjusted Life Years.[3,12] There is no agreement on what is meant by quality of life, but Gill and Feinstein found in a recent literature survey that "most measurements of quality of life in the medical literature seem to aim at the wrong target".[9] They concluded that, in assessing quality of life, patients must be allowed to express their individual opinions and reactions. They assert that many researchers, although employing statistically validated psychometric instruments, are actually measuring health status rather than quality of life as perceived by the individual.

During the decade of the 1990s, quality of life was increasingly acknowledged as a necessary indicator of the need for health service and interventions. Selected data to assess self-perceived health status had been available for the nation for decades from surveys such as the National Health Interview Survey and the National Health and Nutrition Examination Survey. However, the goal to increase the span of healthy life, one of the three overarching goals of *Healthy People 2000*[2], generated additional interest among staff of the federal Centers for Disease Control and Prevention (CDC) in developing a means for states and perhaps local areas to assess health-related quality of life for their populations through developing questions to include in the Behavioral Risk Factor Surveillance System (BRFSS) surveys. The BRFSS is sponsored by CDC and is utilized in every state to measure health risk behavior among adults through annual randomized telephone surveys. Workshops with experts in quality of life measurement in attendance were held in 1991 and 1992 for the purpose of developing questionnaire items for the BRFSS surveys to measure self-perceived health status, as well as estimates of recent days when health was not good and activity was limited. The focus was on respondent-assessed health status which has been found to be "…strongly associated with a person's objective physical and mental health status and is an independent predictor of mortality; these relationships also persist across age and cultural groups. In addition, self-perceived health is a good proxy indicator for chronic disease conditions that have a heavy burden of symptoms and result in a poor prognosis, and it has been shown to be sensitive to co-morbidity, or the presence of multiple disease conditions".[10] The four questions which resulted from the workshops have been part of the core BRFSS questionnaire from 1993 to the present, so that states now have a number of years of data for assessing self-perceived health status.

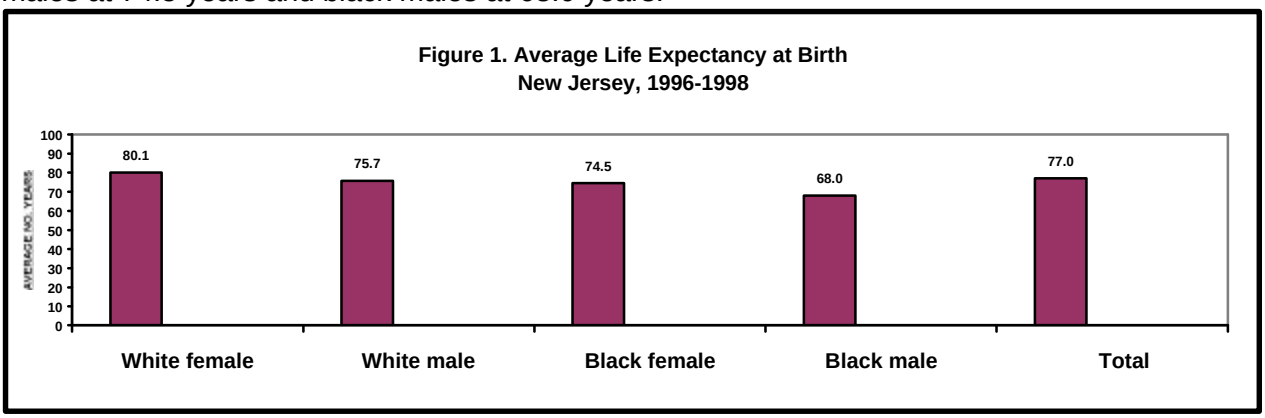
Estimates of healthy life expectancy were first published by the U.S. Department of Health, Education and Welfare in the 1960s.[6] The computation of healthy life expectancy uses the life table technique which assumes a closed population, with no immigration in or out, usually for a one-year time period. At the end of the time period, the population will consist of those who died and those who survived. Of those who survived, some will be healthy and some unhealthy. A model can be built which partitions the closed population into these groups, based on existing death rates and self-perceived health status, determined through surveys. The final result of the table is the average years of healthy life remaining for persons entering any of the 18 age categories.

Death data for 1996 though 1998 and BRFSS responses to the question, "Would you say that in general your health is: excellent, very good, good, fair, or poor?" for the same three-year period were used in the calculation of healthy life expectancy. Several years of data were needed to provide stability to the death rates and BRFSS responses. The life table used for this study was an abridged one, with 18 five-year age groups, rather than single years of age. The width of the oldest age group, 85 years and over, was assumed to be 10 years. A discussion of the

methodology for constructing abridged life tables is given elsewhere.[11] Due to small numbers of responses to BRFSS surveys in New Jersey by persons in racial groups other than black or white and known under-reporting of deaths to Hispanics and persons of races other than white and black, this study will be limited to the total population and males and females of the white and black races.

Results

The abridged life table provides the average number of years of life remaining at the beginning of each of the age groups covered. In the time period under study, 1996 through 1998, a newborn infant in New Jersey would be expected to live an average of 77.0 years, assuming that the age-specific death rates in effect at the time continue for its entire lifetime. There is considerable variation in life expectancy, depending on race and sex (Figure 1 and Table 1). Of the four race/sex groups studied, white females have the greatest life expectancy, an average at birth of 80.1 years, followed by white males at 75.7 years, black females at 74.5 years and black males at 68.0 years.



Complete life tables for the total population and each subpopulation, as well as formulas for the life table components, are included in the Appendix. Although the life expectancy at birth for whites is greater than that for blacks, it should be noted that at the middle and older ages, black female life expectancy exceeds white male expectancy. In addition, at ages 75 and over, the average years of life remaining for black females is very similar to the average life expectancy for white females. The gap between white male and black male life expectancy also narrows as age increases and, at the oldest ages, the life expectancy for black males is identical to that for white males. These relative changes in life expectancy by race and sex are known as the "crossover effect".[12] While blacks have higher age-specific death rates at lower ages, these rates are somewhat lower among elderly blacks and are responsible for the narrowing of life expectancies in the four race/sex groups studied.

The traditional life table serves a very useful purpose in providing the average lifetime remaining at the beginning of each of the five-year age groups within each of the subpopulations (Table 1). However, the life expectancy figures provide no information as to whether these can be expected to be healthy years, unhealthy years or some combination of healthy and unhealthy years. Additional information is needed to allow partitioning of the average remaining lifetime into "good" health years and years when health was not "good".

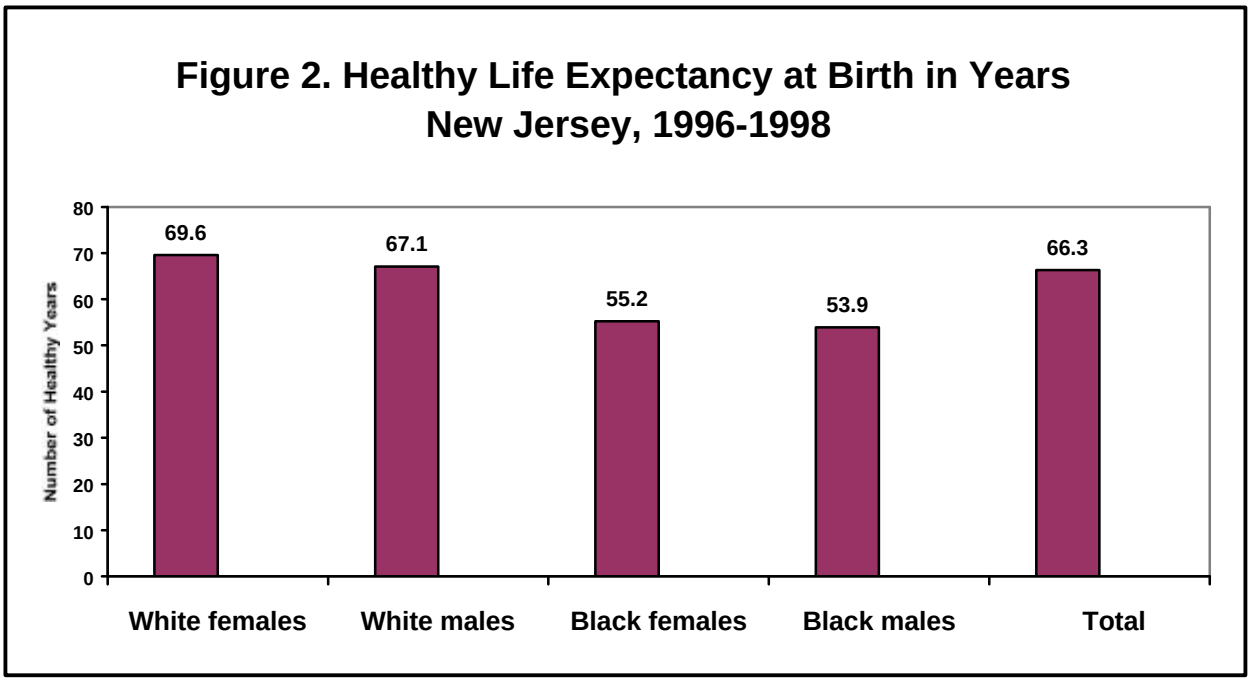
Estimates of self-perceived "good" health of the adult population of the state may be obtained from the BRFSS survey question, "Would you say that in general your health is: a. Excellent; b. Very good; c. Good; d. Fair, or e. Poor? For the population in any age group, the proportion in good health is defined as the respondents who answered "excellent", "very good" or "good" to

the question, divided by the total number of persons who gave a response to the item. Persons in the sample who refused or otherwise did not respond to the question were not included in the denominator.

Table 1. Life Expectancy for New Jersey Residents 1996-1998

Age Group	Race/Sex Group				
	Total	White Female	White Male	Black Female	Black Male
0-4	77.0	80.1	75.7	74.5	68.0
5-9	72.6	75.5	71.1	72.6	64.2
10-14	67.7	70.6	66.2	65.7	59.3
15-19	62.7	65.6	61.2	60.8	54.4
20-24	57.9	60.7	56.4	55.9	49.7
25-29	53.1	55.8	51.7	51.1	45.2
30-34	48.4	50.9	47.0	46.4	40.7
35-39	43.7	46.1	42.2	41.8	36.4
40-44	39.0	41.3	37.6	37.5	32.3
45-49	34.5	36.5	33.1	33.3	28.5
50-54	30.0	31.9	26.6	29.1	24.8
55-59	25.7	27.4	24.3	25.1	21.3
60-64	21.6	23.1	20.3	21.2	17.9
65-69	17.8	19.1	16.6	17.6	15.0
70-74	14.3	15.3	13.2	14.2	12.1
75-79	11.2	11.8	10.4	11.4	9.9
80-84	8.4	8.7	7.9	8.5	7.9
85+	6.0	6.0	6.0	6.0	6.0

The BRFSS surveys interview a probability sample of adult New Jerseyans aged 18 and above. There is no available source of information on the population under 18 years that captures the same type of information on self-perceived health status. To complete the Healthy Life Expectancy tables for each of the groups under study, the proportion of the weighted sample of 18 through 24 year olds who responded in the "good" health category in each of the race/sex subgroups or the total sample was assumed for each of the age groups 0-4, 5-9, 10-14, 15-19 and 20-24 years of age in the respective group. The effect of using the self-perceived health status of 18 through 24 year olds to estimate that for younger groups is most likely an understatement of the average remaining years in a healthy state, although the effect on



estimated healthy years is probably slight. The average numbers of years in a healthy state expected at birth for each of the race/sex groups and for the total population are shown in Figure 2.

Table 2. Average Number of Years in Healthy State New Jersey Residents, 1996-1998

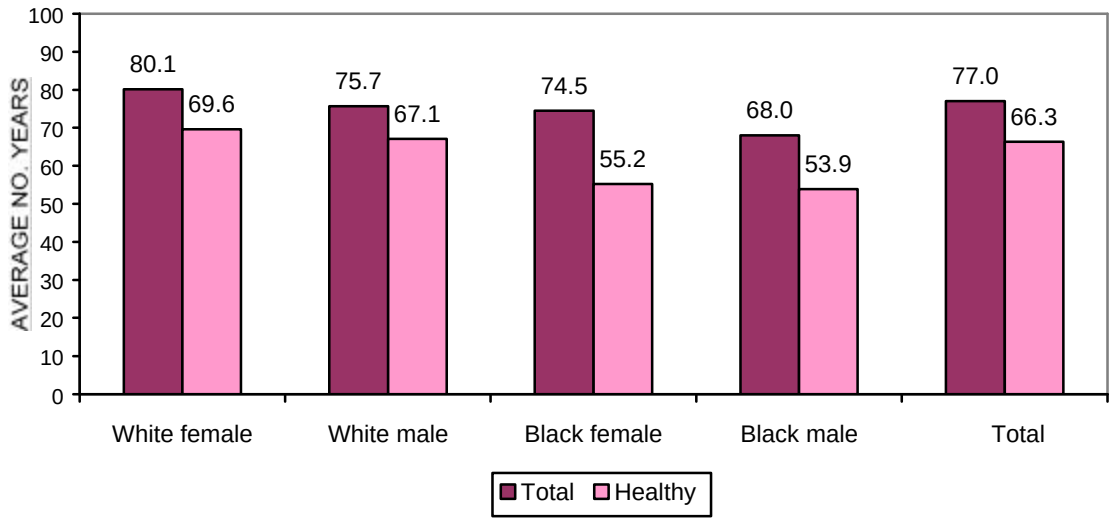
Age Group	Race/Sex Group				
	Total	White Female	White Male	Black Female	Black Male
0-4	66.3	69.6	67.1	55.2	53.9
5-9	62.3	65.4	62.9	52.3	50.3
10-14	57.8	60.9	58.2	48.8	45.8
15-19	53.3	56.4	53.5	45.2	41.3
20-24	48.8	51.9	49.0	41.6	37.0
25-29	44.5	47.5	44.5	38.0	32.8
30-34	40.1	42.9	40.1	33.9	28.6
35-39	35.6	38.2	35.5	29.8	24.5
40-44	31.1	33.5	31.0	25.7	20.2
45-49	26.9	29.1	26.8	21.9	17.5
50-54	22.9	24.9	22.8	18.2	14.6
55-59	19.0	20.8	18.8	15.2	12.4
60-64	15.8	17.1	15.3	12.8	9.2
65-69	12.6	13.4	12.4	10.8	8.1
70-74	9.8	10.3	9.5	8.7	6.4
75-79	7.5	7.8	7.4	6.0	4.0
80-84	5.0	5.2	5.3	3.5	2.8
85+	3.4	3.0	4.8	1.5	2.1*

*Because of the small sample size in the 85+ population, the proportion of persons in the age interval 80-84 years in a healthy state was assumed for this age category.

The average number of healthy years of life remaining upon entering each of the age groups by members of each of the race/sex groups is shown in Table 2. The estimates were obtained by multiplying the proportion of respondents in the "good" health category by the total number of person-years lived for the population in the specific age interval. These data illustrate that, while the average baby born during the period 1996 through 1998 can expect to live 77.0 years if age-specific death rates in effect at that time are unchanged for his or her lifetime, the expected years of life in "good" health is 66.3 (assuming the age-specific responses to question regarding perception of health remain in effect during the newborn's entire lifetime).

White females not only have the greatest life expectancy at birth of the four race/sex groups studied (80.1 years), but also the highest number of expected years of healthy life (69.6). Of note is that the gap between males and females for each of the two races studied narrowed in number of years of healthy life compared to the differences in average life expectancy. However, there was a greater distance between black and white females in average number of healthy years at birth (14.4) than in average life expectancy (5.6 years). The same trend was true of the gaps between the average number of healthy years at birth for black males and white males (13.2) compared to differences in average life expectancy (7.7 years) (see Figure 3).

Figure 3. Average Life Expectancy and Healthy Life Expectancy at Birth New Jersey, 1996-1998



The estimates of self-perceived health state are obtained from a sample of responses, through the Behavioral Risk Surveillance System surveys. As a result, these estimates have associated sampling error. See the statistical note below.

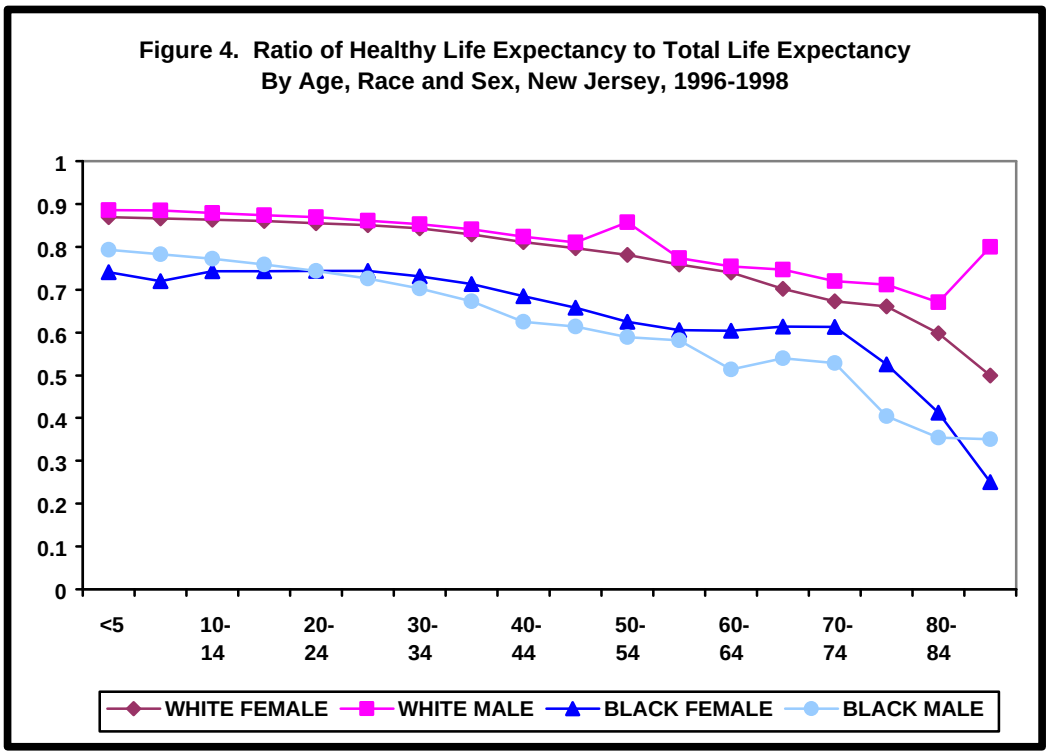
Table 3 presents the differences in healthy life expectancy between the total population and each of the four race/sex and age groups. From the table it can be seen that the healthy life expectancies for white and black females from birth though age 64, and for black males from birth through age 79 differ significantly from those of the total population. The healthy life expectancy for the white female population is significantly greater in most age groups than that of the total population, while healthy life expectancies for the black population, both male and female, in all but the oldest age groups are significantly lower than those for the total population.

Table 3. Differences in Healthy Life Expectancies by Race, Sex & Age New Jersey Residents, 1996-1998					
Age Group	Race/Sex Group				
	Total	White Female	White Male	Black Female	Black Male
	Healthy life expectancy	Diff. in healthy life expectancy	Diff. In healthy life expectancy	Diff. in healthy life expectancy	Diff. in healthy life expectancy
0-4	66.3	3.3*	0.8	-11.1*	-12.4*
5-9	62.3	3.1*	0.6	-10.0*	-12.0*
10-14	57.8	3.1*	0.4	-9.0*	-12.0*
15-19	53.3	3.1*	0.2	-8.1*	-12.0*
20-24	48.8	3.1*	0.2	-7.2*	-11.8*
25-29	44.5	3.0*	0.0	-6.5*	-11.7*
30-34	40.1	2.8*	0.0	-6.2*	-11.5*
35-39	35.6	2.6*	-0.1	-5.8*	-11.1*
40-44	31.1	2.4*	-0.1	-5.4*	-10.9*
45-49	26.9	2.2*	-0.1	-5.0*	-9.4*
50-54	22.9	2.0*	-0.1	-4.7*	-8.3*
55-59	19.0	1.8*	-0.2	-3.8*	-6.6*
60-64	15.8	1.3*	-0.5	-3.0*	-6.6*
65-69	12.6	0.8	-0.2	-1.8	-4.5*
70-74	9.8	0.5	-0.3	-1.1	-3.4*
75-79	7.5	0.3	-0.1	-1.5	-3.5*
80-84	5.0	0.2	0.3	-1.5	-2.2
85+	3.4	-0.4	1.4	-1.9	-1.3

Difference in healthy life expectancy is the healthy life expectancy in the race/sex group for a specific age group minus the comparable healthy life expectancy for that age group in the total population.
* Difference in healthy life expectancy from total healthy life expectancy is statistically significant at the 95% confidence level.

The ratios of healthy life expectancy to total life expectancy for each of the race/sex groups by age are shown in Figure 4. Within each race, these ratios are relatively consistent for males and females and decrease gradually with age. The proportions of expected life that are healthy years are higher for both male and female whites than for black males and females and are higher for white males than white females. Although white females have a longer life expectancy than white males and also have a greater expected number of years of good health, the proportion of healthy years to life expectancy is higher in every age group for males than for females.

The ratios of healthy life expectancy to total life expectancy for black males and females exhibit a pattern of higher ratios for males only in the younger ages (with the exception of the 85 and over group, which is based on a very small BRFSS sample). Through the age group 15 through 19 years, the black male ratio of healthy life expectancy to total life expectancy exceeds the female ratio. The ratios are identical in the age group 20 through 24 years and the black female ratio is greater than the male ratio through age 84 years. This finding is no doubt related to the higher levels of morbidity experienced by black males in the young and middle adult years caused by much higher rates of HIV infection, injuries, both unintentional and intentional, and diabetes as well as other conditions, than in other race/sex groups.



Discussion

The elderly population is the fastest growing age group in terms of relative size. One of the major factors in the increase in numbers of elderly persons is the lengthening of life expectancy experienced in this country over the past century. However, the growth in average number of years of life and in average number of these years expected to be in good health are not equally distributed among persons of the major races and both sexes. White females have both longer average life expectancy and a greater average number of years in good health than white males, black females or black males. Black males have the lowest life expectancy and the fewest average years of good health. The causes of morbidity and mortality which afflict the black male population at high rates are well known: HIV infection, homicide, stroke, and diabetes, among others. The gaps in healthy life expectancy highlight the need to focus prevention and early intervention programs on this population, if both of the overarching goals of *Healthy New Jersey 2010* are to be met.

The finding that the gap between racial groups is larger in terms of morbidity (as measured by healthy life expectancy) than for mortality (from life expectancy) also has important implications for efforts to improve the quality of life. The reasons for the greater gap in healthy life expectancies may be related to health access and insurance coverage, socioeconomic status, and cultural issues and warrants additional study.

Statistical Note:
A set of software called SUDAAN[13] was used to calculate the standard error of the estimates, since the sample was a two-stage cluster design and the formula for computing the variance of an estimate from a simple nonstratified sample did not apply. Using the variance of the estimates of "good" health for each of the age groups, variances for each of the estimates of healthy life expectancy were calculated through the use of the SUDAAN software. These standard errors provided the opportunity to test the difference in healthy life expectancy between the estimate for the total population for each age group in each of the four population subgroups. In order to use the z-score test of the difference between two means, it must be assumed that the random variables which make up the estimates of healthy life expectancy are independent of each other and normally 95 distributed. The critical level for a two-tailed test of the difference between two means at the 95 percent level of significance is 1.96. A two-tailed test yields significant differences either greater than or less than the healthy life expectancies for the total population.

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The author wishes to acknowledge the valuable contribution of Kenneth O'Dowd, Ph.D., in the provision of the BRFSS estimates and calculation of variances through use of SUDAAN software, as well as for thoughtful review of the report.

The author also wishes to thank Martin T. Zanna, MD, for insightful review of this paper, and for the provision of additional pertinent references.

APPENDIX

Technical Notes

The formulas and constants used in the computations in the tables on the following pages are:

1. Proportions of years lived by those who die in age interval (a_x) are from: Molla MT, Wagener DK, Madans JH. Summary measures of population health: Methods for calculating healthy life expectancy. Healthy People Statistical Notes, no. 21. Hyattsville, Maryland: National Center for Health Statistics. August 2001.

2. Probability of dying during age interval ($_nq_x$) = $\frac{nD_x}{P_x+na_xD_x}$,

where n = the span of the age group. In this application, n equals 5 except for the 85 years + group, which has an assumed span of 10 years

D_x = age-specific three-year average number of deaths for the age group x

P_x = population in the age group x

3. Number alive at the beginning of the age interval (l_x): Starting with an assumed cohort of 100,000 persons at birth, the number alive at the beginning of any other age group is the number alive at the beginning of the prior group multiplied by the probability of surviving the age interval ($1 - q_x$)

or $_{x+n} = l_x(1 - {}_nq_x)$

4. Total number of years lived in age interval ($_nL_x$) =

n[number alive at beginning of the x+n interval+a_x(number alive in the x interval - number alive in x+n interval)]

or $L_x = n[l_{x+n} + a_x(l_x - l_{x+n})$

5. Number of years lived in this and subsequent age intervals (T_x) =

φTotal number of years lived in this age interval and in all older age intervals through 85 years and over,

or $T_x = \Gamma L_l$, summed over all l = x

6. Life expectancy at beginning of age interval:

e_x = Number of years lived in this and subsequent age intervals
Number alive at beginning of age interval, for each age interval x

or $= T_x/l_x$

7. Proportion of persons in age interval in healthy state is the number of respondents to the BRFSS surveys of 1996 through 1998 in New Jersey who indicated an excellent, very good or good current health status, divided by the total number of persons who gave a response to the question. Respondents who refused to answer the question or indicated they did not know were excluded from the denominator.

8. Number of healthy years lived in age interval = Proportion of persons in age interval in healthy state multiplied by the number of years lived in the age interval.

9. Number of years lived in healthy state in this and all subsequent age intervals =
φTotal number of healthy years lived in this age interval and in all older age intervals through 85 years and over

10. Average number of years in healthy state remaining at beginning of age interval x:

$$e'_x = \frac{\text{Number of years lived in healthy state in age interval x and all subsequent age intervals}}{\text{Number of persons alive at the beginning of age interval x}}$$

Healthy Life Expectancy for the Total Population
New Jersey, 1996-1998

Age Group	Mid-year Population	Age-specific deaths/1000	Prop. of years lived by those who die in age interval	Probability of dying during age interval	Number alive at beginning of interval	Total number years lived in age interval	No. Years Lived in this and subsequent age intervals	Life Expectancy at beginning of age interval	Proportion of persons in age interval in healthy state	Number of healthy years lived in age intervals	Number of years lived in healthy state in this and all subsequent age intervals	Average number of years in healthy state remaining at beginning of age interval
0-4	556,867	1.5916	0.178	0.0079	100,000	496,753	7,701,873	77.0	0.912	453,039	6,632,455	66.3
5-9	584,532	0.1500	0.477	0.0007	99,210	495,870	7,205,120	72.6	0.912	452,233	6,179,416	62.3
10-14	533,528	0.1806	0.530	0.0009	99,141	495,496	6,709,250	67.7	0.912	451,892	5,727,183	57.8
15-19	509,849	0.5211	0.555	0.0026	99,052	494,686	6,213,754	62.7	0.912	451,154	5,275,291	53.3
20-24	469,431	0.8130	0.517	0.0041	98,794	492,992	5,719,068	57.9	0.912	449,609	4,824,137	48.8
25-29	514,244	0.9898	0.519	0.0049	98,389	490,786	5,226,076	53.1	0.923	452,995	4,374,528	44.5
30-34	655,521	1.2611	0.538	0.0063	97,907	488,110	4,735,290	48.4	0.948	462,728	3,921,533	40.1
35-39	723,615	1.7233	0.524	0.0086	97,290	484,458	4,247,180	43.7	0.955	462,657	3,458,805	35.6
40-44	661,428	2.4669	0.524	0.0123	96,453	479,442	3,762,722	39.0	0.907	434,854	2,996,148	31.1
45-49	567,721	3.4524	0.528	0.0171	95,267	472,491	3,283,280	34.5	0.882	416,737	2,561,294	26.9
50-54	487,732	4.9242	0.531	0.0243	93,638	462,855	2,810,789	30.0	0.880	407,312	2,145,482	22.9
55-59	371,572	7.6907	0.534	0.0377	91,363	448,790	2,347,934	25.7	0.815	365,764	1,738,170	19.0
60-64	311,121	12.6692	0.534	0.0613	87,919	427,039	1,899,144	21.6	0.802	342,485	1,384,790	15.8
65-69	314,173	18.9238	0.534	0.0901	82,530	395,324	1,472,105	17.8	0.775	306,376	1,042,305	12.6
70-74	282,230	30.4940	0.539	0.1409	75,094	351,081	1,076,781	14.3	0.725	254,534	735,929	9.8
75-79	234,796	44.7353	0.543	0.1995	64,513	293,157	725,700	11.2	0.753	220,747	481,395	7.5
80-84	150,716	74.3871	0.529	0.3108	51,643	220,415	432,543	8.4	0.633	139,523	260,648	5.0
85+	123,773	151.1665	0.596	1.0000	35,592	212,128	212,128	6.0	0.571	121,125	121,125	3.4

Healthy Life Expectancy for White Females
New Jersey, 1996-1998

Age Group	Mid-year Population	Age-specific deaths/1000	Prop. of years lived by those who die in age interval	Probability of dying during age interval	Number alive at beginning of interval	Total number years lived in age interval	No. Years Lived in this and subsequent age intervals	Life Expectancy at beginning of age interval	Proportion of persons in age interval in healthy state	Number of healthy years lived in age intervals	Number of years lived in healthy state in this and all subsequent age intervals	Average number of years in healthy state remaining at beginning of age interval
0-4	206,136	1.0495	0.178	0.0052	100,000	497,863	8,009,602	80.1	0.909	452,557	6,957,913	69.6
5-9	218,098	0.1100	0.477	0.0006	99,480	497,243	7,511,739	75.5	0.909	451,994	6,505,356	65.4
10-14	197,309	0.1250	0.530	0.0006	99,420	496,959	7,014,496	70.6	0.909	451,736	6,053,362	60.9
15-19	184,880	0.2668	0.555	0.0013	99,360	496,513	6,517,537	65.6	0.909	451,330	5,601,626	56.4
20-24	171,959	0.3896	0.517	0.0019	99,231	495,699	6,021,024	60.7	0.909	450,590	5,150,296	51.9
25-29	191,828	0.5126	0.519	0.0026	99,042	494,590	5,525,325	55.8	0.941	465,409	4,699,706	47.5
30-34	253,980	0.6693	0.538	0.0033	98,784	493,167	5,030,735	50.9	0.968	477,386	4,234,297	42.9
35-39	288,130	0.8549	0.524	0.0043	98,458	491,283	4,537,568	46.1	0.960	471,632	3,756,911	38.2
40-44	270,347	1.3131	0.524	0.0065	98,035	488,659	4,046,285	41.3	0.922	450,544	3,285,279	33.5
45-49	233,381	1.9939	0.528	0.0099	97,398	484,715	3,557,626	36.5	0.892	432,366	2,834,735	29.1
50-54	206,191	3.4757	0.531	0.0172	96,434	478,280	3,072,911	31.9	0.907	433,800	2,402,369	24.9
55-59	157,062	5.5095	0.534	0.0271	94,775	467,892	2,594,631	27.4	0.835	390,690	1,968,569	20.8
60-64	135,501	9.5030	0.534	0.0463	92,207	451,088	2,126,739	23.1	0.876	395,153	1,577,879	17.1
65-69	147,827	14.4223	0.534	0.0694	87,938	425,470	1,675,651	19.1	0.790	336,121	1,182,726	13.4
70-74	143,687	23.3911	0.539	0.1100	81,835	388,425	1,250,181	15.3	0.713	276,947	846,605	10.3
75-79	126,547	36.7663	0.543	0.1671	72,833	336,357	861,756	11.8	0.762	256,304	569,658	7.8
80-84	87,985	64.7648	0.529	0.2765	60,663	263,815	525,399	8.7	0.693	182,824	313,354	5.2
85+	82,172	145.7918	0.596	1.0000	43,890	261,584	261,584	6.0	0.499	130,530	130,530	3.0

Healthy Life Expectancy for White Males
New Jersey, 1996-1998

Age Group	Mid-year Population	Age-specific deaths/1000	Prop. of years lived by those who die in age interval	Probability of dying during age interval	Number alive at beginning of interval	Total number years lived in age interval	No. Years Lived in this and subsequent age intervals	Life Expectancy at beginning of age interval	Proportion of persons in age interval in healthy state	Number of healthy years lived in age intervals	Number of years lived in healthy state in this and all subsequent age intervals	Average number of years in healthy state remaining at beginning of age interval
0-4	216,306	1.2883	0.178	0.0064	100,000	497,370	7,565,104	75.7	0.941	468,025	6,714,487	67.1
5-9	228,992	0.1310	0.477	0.0007	99,360	496,617	7,067,734	71.1	0.941	467,317	6,246,462	62.9
10-14	208,007	0.1763	0.530	0.0009	99,290	496,241	6,571,117	66.2	0.941	466,963	5,779,145	58.2
15-19	198,387	0.5847	0.555	0.0029	99,201	495,364	6,074,876	61.2	0.941	466,138	5,312,182	53.5
20-24	182,045	0.9998	0.517	0.0050	98,913	493,370	5,579,512	56.4	0.941	464,261	4,846,044	49.0
25-29	197,222	1.1070	0.519	0.0055	98,418	490,789	5,086,142	51.7	0.939	460,851	4,381,783	44.5
30-34	255,403	1.3286	0.538	0.0066	97,877	487,893	4,595,353	47.0	0.959	467,889	3,920,932	40.1
35-39	288,294	1.7956	0.524	0.0089	97,231	484,096	4,107,460	42.2	0.954	461,828	3,453,043	35.5
40-44	263,033	2.5789	0.524	0.0128	96,366	478,895	3,623,364	37.6	0.929	444,893	2,991,215	31.0
45-49	226,778	3.7291	0.528	0.0185	95,133	471,511	3,144,469	33.1	0.890	419,645	2,546,322	26.8
50-54	198,558	5.2075	0.531	0.0257	93,373	461,237	2,672,958	28.6	0.904	416,958	2,126,677	22.8
55-59	147,665	8.5328	0.534	0.0417	90,973	446,025	2,211,721	24.3	0.833	371,539	1,709,719	18.8
60-64	124,308	14.2871	0.534	0.0688	87,179	421,920	1,765,696	20.3	0.784	330,785	1,338,180	15.3
65-69	123,164	22.7989	0.534	0.1075	81,181	385,571	1,343,776	16.6	0.827	318,867	1,007,395	12.4
70-74	107,936	37.9824	0.539	0.1723	72,454	333,494	958,205	13.2	0.740	246,786	688,528	9.5
75-79	86,391	55.4533	0.543	0.2410	59,970	266,825	624,711	10.4	0.754	201,186	441,742	7.4
80-84	50,347	92.7960	0.529	0.3725	45,517	187,656	357,886	7.9	0.558	104,712	240,556	5.3
85+	31,717	174.6067	0.596	1.0000	28,562	170,230	170,230	6.0	0.798	135,844	135,844	4.8

Healthy Life Expectancy for Black Females
New Jersey, 1996-1998

Age Group	Mid-year Population	Age-specific deaths/1000	Prop. of years lived by those who die in age interval	Probability of dying during age interval	Number alive at beginning of interval	Total number years lived in age interval	No. Years Lived In this and Subsequent Age intervals	Life Expectancy at beginning of age interval	Proportion of persons in age interval in healthy state	Number of healthy years lived in age intervals	Number of years lived in healthy state in this and all subsequent age intervals	Average number of years in healthy state remaining at beginning of age interval
0-4	48,043	3.0112	0.178	0.0150	100,000	493,835	7,449,756	74.5	0.733	361,981	5,518,013	55.2
5-9	51,509	0.3171	0.477	0.0016	98,500	492,087	6,955,921	70.6	0.733	360,700	5,156,032	52.3
10-14	45,951	0.2466	0.530	0.0012	98,342	491,433	6,463,834	65.7	0.733	360,220	4,795,332	48.8
15-19	46,572	0.4223	0.555	0.0021	98,224	490,662	5,972,401	60.8	0.733	359,655	4,435,112	45.2
20-24	42,446	0.6440	0.517	0.0032	98,018	489,332	5,481,739	55.9	0.733	358,680	4,075,457	41.6
25-29	45,446	1.1515	0.519	0.0057	97,704	487,180	4,992,407	51.1	0.866	421,898	3,716,777	38.0
30-34	53,572	2.0844	0.538	0.0104	97,147	483,402	4,505,227	46.4	0.885	427,811	3,294,879	33.9
35-39	54,025	3.3935	0.524	0.0168	96,137	476,841	4,021,825	41.8	0.910	433,925	2,867,068	29.8
40-44	47,123	4.3503	0.524	0.0215	94,522	467,774	3,544,984	37.5	0.870	406,963	2,433,143	25.7
45-49	41,036	5.4099	0.528	0.0267	92,490	456,623	3,077,210	33.3	0.844	385,390	2,026,180	21.9
50-54	31,964	7.1226	0.531	0.0350	90,021	442,716	2,620,587	29.1	0.716	316,985	1,640,790	18.2
55-59	27,585	9.7517	0.534	0.0475	86,870	424,736	2,177,871	25.1	0.623	264,611	1,323,805	15.2
60-64	21,661	15.0501	0.534	0.0723	82,744	399,782	1,753,135	21.2	0.574	229,475	1,059,194	12.8
65-69	19,476	20.3841	0.534	0.0967	76,762	366,514	1,353,353	17.6	0.622	227,972	829,719	10.8
70-74	14,059	34.5449	0.539	0.1580	69,339	321,441	986,839	14.2	0.791	254,260	601,747	8.7
75-79	10,761	43.9860	0.543	0.1965	58,383	265,701	665,398	11.4	0.686	182,271	347,487	6.0
80-84	6,590	69.4487	0.529	0.2934	46,911	202,141	399,697	8.5	0.573	115,827	165,216	3.5
85+	5,759	138.9709	0.596	1.0000	33,147	197,556	197,556	6.0	0.250	49,389	49,389	1.5

Healthy Life Expectancy for Black Males
New Jersey, 1996-1998

Age Group	Mid-year Population	Age-specific deaths/1000	Prop. of years Lived by those Who die in age Interval	Probability of dying during age interval	Number alive at beginning of interval	Total number years lived in age interval	No. Years Lived in this and subsequent age intervals	Life Expectancy at beginning of age interval	Proportion of persons in age interval in healthy state	Number of healthy years lived in age intervals	Number of years lived in healthy state in this and all subsequent age intervals	Average number of years in healthy state remaining at beginning of age interval
0-4	50,523	3.6155	0.178	0.0180	100,000	492,602	6,795,936	68.0	0.913	449,746	5,393,702	53.9
5-9	53,141	0.2070	0.477	0.0010	98,200	490,744	6,303,334	64.2	0.913	448,049	4,943,956	50.3
10-14	48,205	0.3596	0.530	0.0018	98,102	490,094	5,812,590	59.3	0.913	447,456	4,495,907	45.8
15-19	48,555	1.3936	0.555	0.0069	97,925	488,121	5,322,496	54.4	0.913	445,654	4,048,451	41.3
20-24	42,708	2.0527	0.517	0.0102	97,249	483,849	4,834,375	49.7	0.913	441,754	3,602,797	37.0
25-29	43,625	2.4374	0.519	0.0121	96,257	478,483	4,350,526	45.2	0.921	440,683	3,161,043	32.8
30-34	48,321	3.4423	0.538	0.0171	95,092	471,704	3,872,043	40.7	0.903	425,949	2,720,360	28.6
35-39	48,766	5.1265	0.524	0.0253	93,466	461,701	3,400,339	36.4	0.988	456,161	2,294,411	24.5
40-44	40,337	8.1398	0.524	0.0398	91,101	446,875	2,938,638	32.3	0.694	310,131	1,838,250	20.2
45-49	32,834	10.2536	0.528	0.0499	87,475	427,074	2,491,763	28.5	0.730	311,764	1,528,119	17.5
50-54	25,268	12.7962	0.531	0.0619	83,110	403,485	2,064,689	24.8	0.622	250,968	1,216,355	14.6
55-59	21,108	16.6130	0.534	0.0795	77,965	375,384	1,661,204	21.3	0.814	305,563	965,387	12.4
60-64	16,667	25.4395	0.534	0.1191	71,767	338,920	1,285,820	17.9	0.435	147,430	659,824	9.2
65-69	14,659	31.5165	0.534	0.1454	63,220	294,683	946,900	15.0	0.559	164,728	512,394	8.1
70-74	9,580	53.0271	0.539	0.2320	54,028	241,249	652,217	12.1	0.748	180,454	347,666	6.4
75-79	6,533	69.3913	0.543	0.2920	41,494	179,785	410,968	9.9	0.471	84,679	167,212	4.0
80-84	3,242	92.5355	0.529	0.3717	29,378	121,173	231,183	7.9	0.357	43,259	82,533	2.8
85+	2,392	141.1650	0.596	1.0000	18,458	110,010	110,010	6.0	0.357	39,274	39,274	2.1

Note: Because of small sample size in the 85+ population, the proportion of persons in age interval in healthy state for the 80-84 age group was assumed for this category.