Hispanic and Non-Hispanic White Life Expectancy Differentials Decomposed by Cause of Death

Lloyd B. Potter, University of Texas at San Antonio

Life expectancy is an important indicator of population health and differentials in life expectancy have been associated with differentials in socioeconomic status(1). The noted and debated "Hispanic Paradox" of Hispanics in the U.S. living longer despite having lower social and economic status has perplexed demographers for decades. Recently, the U.S. National Center for Health Statistics (NCHS) released Hispanic life tables that support the notion that Hispanics in the U.S. live longer than the non-Hispanic white population (2). NCHS estimates of life expectancy for the total population in 2006 was 77.7 years. For the Hispanic population the estimate of life expectancy was 80.6 years and 78.1 years for the non-Hispanic white population. While there is substantiated evidence for a life expectancy differential between U.S. Hispanics and the non-Hispanic white that favors Hispanics, there is relatively little information about the underlying cause of death differentials between the two groups.

To better understand the how the underlying cause of death structure contributes to the life expectancy advantage experienced by Hispanics in the U.S. life expectancy differentials between Hispanic whites and non-Hispanic whites were decomposed by underlying causes of death. The 2004-05 mortality files from the National Center for Health Statistics (NCHS) were used to construct ethnic specific life tables (3). These methods were used to partition the contribution to life expectancy at birth by selected causes of death (4) using the International Classification of Diseases, Tenth Revision, (ICD-10) codes for the Hispanic whites and non-Hispanic whites (for the total and by sex) in the United States. The contribution in years for each cause of death to the Hispanic/non-Hispanic differential and statistical tests of difference (Z-scores) were determined using Survival software (5), with Hispanic whites as the referent group. Causes of death used were selected from leading causes of death in 2005 for the total population and for both ethnic populations. Other causes of death were categorized as "all other causes."

Results indicate that life expectancy at birth was 81.3 years for Hispanic whites, and 78.1 years for non-Hispanic whites. Causes of death that favored Hispanic whites over non-Hispanic whites included malignant neoplasm (.70 years), heart disease (.35 years), chronic lower respiratory disease (.24 years) and suicide (.15 years). Several causes of death favored life expectancy of non-Hispanic whites over Hispanic whites including homicide (-.17 years), diabetes mellitus (-.15 years), and HIV (-.04 years) (see table 1).

For males, Hispanic life expectancy at birth was 78.43 years and for non-Hispanic whites it was 75.51. Among males, causes of death that favored Hispanic whites over non-Hispanic whites were also malignant neoplasm, heart disease chronic lower respiratory disease and suicide. Several causes of death favored life expectancy of non-Hispanic whites over Hispanic whites including homicide, diabetes mellitus, and HIV (see table 2).

For females, Hispanic life expectancy at birth was 84.07 years and for non-Hispanic whites it was 80.50 years. Among females, causes of death that favored Hispanic whites over non-Hispanic whites were also malignant neoplasm, heart disease, and chronic lower respiratory disease but not suicide. Among females, only one cause of death favored life expectancy of non-Hispanic white females over Hispanic whites and that was diabetes mellitus (see table 3).

The implications of these findings regarding the causes of death contributions to ethnic life expectancy differentials are relevant for understanding and anticipating how ethnic life expectancy differentials in the United States may change over time. As the treatments and prevention for cancer and heart disease advance, it's likely that the ethnic life expectancy differential will decline. Additionally, as the obesity epidemic, which differentially affects persons of Hispanic descent, leads to greater prevalence of diabetes, we can expect this to have a more negative effect on the life expectancy of Hispanics.

Table 1. Apportionment of differences in life expectancy by ethnicity at ages 0 to 85.0

U.S. Hispanic white, 2004-5   e(0) = 76.6915
U.S. Non-Hispanic white, 2004-5 e(0) = 75.4234

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Cause	Differential	Z(e)	p(Z)
Homicide/Legal Intervention	-.1671	-6.693	.000
Suicide	.1541	6.174	.000
MV Total	.0124	.498	.619
Malignant Neoplasm	.6970	27.924	.000
Heart Disease	.3484	13.957	.000
Stroke	-.0213	-.852	.394
Perinatal	-.0141	-.564	.573
HIV	-.0824	-3.302	.001
Chronic Lower Respiratory	.2441	9.778	.000
Diabetes Mellitus	-.1288	-5.160	.000
Alzheimer's	.0210	.843	.399
All Other Causes	.2048	8.204	.000
Residual (Distributed Among Causes)	-.0003		
Total	1.2680	50.803	.000

Table 2. Apportionment of differences in life expectancy by ethnicity at ages 0 to 85.0 for males

U.S. Hispanic White Males, 2004-5   e(0) = 74.8052
U.S. Non-Hispanic White Males, 2004-5 e(0) = 73.5928

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Cause	Diff	Z(e)	p(Z)
Homcide/Legal Int	-.2755	-7.598	.000
Suicide	.2294	6.327	.000
MV Total	-.0068	-.188	.851
Malignant Neoplasm	.6835	18.853	.000
Heart Disease	.4624	12.754	.000
Stroke	-.0425	-1.172	.241
Perinatal	-.0107	-.295	.768
HIV	-.1129	-3.113	.002
Chronic Lower Resp	.2214	6.107	.000
Diabetes Mellitus	-.1130	-3.115	.002
Alzheimers	.0157	.433	.665
All Other Causes	.1615	4.453	.000
Residual (Distributed Among Causes)	-.0004		
Total	1.2124	33.441	.000

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Table 3. . `Apportionment of differences in life expectancy by ethnicity at ages 0 to 85.0 for females`

U.S. Hispanic White Females, 2004-5   e*(0) = 78.6167
U.S. Non- Hispanic White Females, 2004-5   e*(0) = 77.2495

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Cause	Diff	Z(e*)	p(Z)
Homicide/Legal Intervention	-.0273	-.823	.410
Suicide	.0792	2.384	.017
MV Total	.0532	1.603	.109
Malignant Neoplasm	.6943	20.909	.000
Heart Disease	.2138	6.438	.000
Stroke	.0009	.028	.978
Perinatal	-.0181	-.544	.587
HIV	-.0447	-1.345	.179
Chronic Lower Respiratory	.2650	7.982	.000
Diabetes Mellitus	-.1453	-4.376	.000
Alzheimer's	.0261	.787	.432
All Other Causes	.2700	8.132	.000
Residual (Distributed Among Causes)	-.0002		
Total	1.3672	41.171	.000

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