

Racial/ethnic variations in causes of mortality among 15-29 year-olds: Evidence from the 1993 National Mortality Followback Study

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Introduction

Demographic research has well documented mortality differentials across racial/ethnic groups over decades. Nevertheless, studies in this area still focus exclusively on endogenous causes; few studies have investigated external causes of mortality differences by race/ethnicity. This study uses 1993 National Mortality Followback Survey to examine racial/ethnic differences in the relative likelihood of death from external causes --specifically, suicide, accident, and homicide-- as compared with death from other (mainly endogenous) causes, focusing on decedents age 15-29, because adolescents and young adults are less stable and may exhibit higher risks of violent death. In addition to comparing these three groups on causes of deaths, we also examine the extent to which structural factors (e.g., poverty, family status) and lifestyle factors (e.g., religious involvement, mental health problems, alcohol and drug use/abuse, risk-taking behaviors, firearm access, antisocial behaviors, etc.) may help to account for the observed racial/ethnic differentials in relative risk of death from the external causes indicated above.

Conceptual Framework

From our knowledge, despite few evidence documenting racial disparities on relative risk of dying from social pathologies (e.g. Rogers et al 1996, 2000), very few demographic studies attempted to identify race differentials in risk factors of external cause-specific mortality. Rogers and Hummer (2000) examined racial/ethnic differences on circulatory diseases, cancers and social pathologies demonstrating that African Americans and Hispanics have higher risks of dying from a combined measure of social pathologies, including suicide, accident, homicide and cirrhosis of the liver, compared to Caucasians, partly due to social disadvantages. Although they did not step further to test other possible mechanisms linking racial/ethnic variations in social pathologies, they speculated that relatively high rates of alcohol and drug use among young Hispanics and African American males may be responsible to the observed findings. A substantial amount of research documents that alcohol and substance use increase the risk of psychiatric disorders, especially depression and anxiety, which may lead to significantly high suicide rates among young people (Koenig et al 1998).

Furthermore, among adolescent populations, driving while intoxicated was also demonstrated to be an important cause of injury and accident (Augustyn & Simons-Morton, 1995). In addition, following Durkheim's tradition, several studies had linked level of social integration (family ties, religious and general social participation) to various forms of external causes mortality. For example, social isolation has been linked to increased mortality risk due to accidents, suicide and homicide (Hummer et al 1999). Another study conducted by Rogers and Hummer (2000) also found similar patterns: those who attended church less frequent exhibited 2 to 3 time higher odds of dying from social pathologies. Recent theoretical work suggests that religious moral guidelines may reduce young people's exposure to deviant activities and unhealthy behaviors, which may in turn reduce their antisocial tendencies that are closely associated with risks of violent death (Ellison et al 1998, 2000). Moreover, religion's values may also prevent suicide because religious people tend to have greater moral objection to suicide (e.g. Ellis & Smith 1991). Taken together, I propose that mental health problems, risk-taking behaviors, lower level of social integration (religious involvement and social network), antisocial behaviors, possession of firearms and low moral standard along with structural factors may account for racial/ethnic differentials on relative risks of dying from suicide, accident and homicide.

Data

Data of this study came from 1993 National Mortality Followback Survey conducted by National Center for Health Statistics. The NMFS is a multicomponent survey sampled 22957 death certificates in 1993, and sent questionnaire to decedents' next of kin, asking questions about decedents' social and demographic information, life styles and health behaviors. This rich unique data source enables identifying risk factors linking external causes of mortality across racial/ethnic groups. The sample of this study is restricted to decedents between age 15 to 29 (N= 2488). Analysis of this study shows that death from suicide, accident and homicide accounts for approximately 67% of total death; while other (mainly endogenous) causes only explain 33% of premature death (15-29). Table 1 provides descriptive statistics for all variables for this study. For categorical variables, percentage distribution is shown. Table 2 presents racial/ethnic percentage by cause of death.

Measures

Dependent Variable

The dependent variable of this study is cause of death: external causes (suicide, accident and

homicide), as compared with natural (endogenous) causes defined by death certificate.

Independent Variables

Key Independent Variable

Racial/Ethnic Differences: Whites/Blacks/Hispanics

Mediators: Life Style Factors

- a. Mental Health Problems
- b. Risk-Taking Behaviors (Substance use, Intoxicated driving and Binge drinking)
- c. Religious Involvement
- d. Social Network
- e. Antisocial Behaviors
- f. Possession of Firearms
- g. Moral Standard

Control Variables

- a. Sociodemographic Factors (Age, Sex, Household Income, Marital Status)
- b. Living Arrangement
- c. Physical Disability

Method

We use Multinomial Logistic Regression to estimate the relative risk of dying from suicide, accident and homicide, compared with natural causes, across three racial/ethnic groups (Non-Hispanic Whites, Blacks and Hispanics). Mediators are added according to the logic of the conceptual framework. All coefficients are in the form of odds ratio. Also, all analysis is weighted to adjust for oversampling and non-responses.

Results

Several key findings emerge from our analyses thus far (Table 3). Even with controls for SES and family background: (1) Compared to non-Hispanic white decedents aged 15-29, African Americans have lower odds of death from suicide and accident, and higher odds of death from homicide, relative to death from natural causes. (2) This pattern involving suicide is

attenuated by controls for risk-taking behaviors, religious attendance and other lifestyle factors, especially possession of firearm(s). (3) Hispanic decedents aged 15-29 have lower odds of death from suicide relative to natural causes, but this pattern is eliminated with controls for religious attendance. (4) Compared to non-Hispanic white decedents, African Americans and Hispanic decedents in this age group are much more likely to die from homicide, and controls for lifestyle factors actually increase these net racial/ethnic differentials. This latter finding suggests that unmeasured structural or cultural factors distinct from the lifestyle variables measured in the NMFS, e.g., neighborhood characteristics, may account for the disproportionate tendency of young minority decedents to die from homicide vs. other causes.

Table 1

Descriptive Statistics for Sociodemographic Variables, Health Conditions and Life Style Factors

Variables	Entire Sample
Causes of Death	
Suicide	12.4
Accident	36.0
Homicide	18.8
Natural	32.8
Racial/Ethnic Groups (%)	
African Americans	26.1
Hispanics	14.9
Whites (ref.)	59.0
Sociodemographic Variables	
Age (%)	
15-17	13.9
18-21	27.4
22-25	26.9
26-29 (ref.)	31.8
Sex (%)	
Female	25.2
Male (ref.)	74.8
Household Income (%)	
Low Income	8.6
Missing Income	53.0
Middle or High Income (ref.)	38.4
Marital Status (%)	
Married	18.3
Single, Divorced, Widowed	81.7
Living Arrangement	
Live Separately With Relatives	23.9
Live Together/Separately with Nonrelatives	14.7
Live Together With Relatives (ref.)	61.7
Physical Disability	
One or More	18.1
Missing	77.6
None (ref.)	4.3
Life Style Factors	
Mental Health Problems	
More than one symptoms	62.6
None	37.4
Risk-Taking Behaviors (%)	
Substance use	
One or more	19.2
None (ref.)	81.4
Intoxicated Driving (%)	
Frequent or Sometimes	4.2
Never (ref.)	95.8
Binge Drinking	
Frequent or Sometimes	15.4
Never (ref.)	84.6
Religious Involvement (%)	
Never	30.5
Sometimes	38.4
Frequently (ref.)	31.1
Social Network	
Small Network	23.3
Larger Network (ref.)	76.7
Antisocial Behaviors (%)	
One or more	51.2
None (ref.)	48.3
Possession of Firearms (%)	
One Firearm	13.4
Multiple Firearms	21.4
Missing Firearms	5.5
No Firearm (ref.)	59.7
Morality (%)	
Lower Moral Standard	77.2
Highest Moral Standard (ref.)	22.8

Table 2

Racial/Ethnic Variations by External Cause of Death

Age 15-29	Whites	African Americans	Hispanics
Suicides	15.7	7.6	7.9
Accident	44.3	26.7	37.1
Homicide	6.6	41.9	26.7
Natural Causes	33.5	33.8	28.2
N= 2488	100%	100%	100%
Weighted N= 37026.8	(1425)	(690)	(373)

	Model 5			Model 6			Model 7			Model 8		
Race/Ethnicity (White)	Suicide	Accident	Homicide	Suicide	Accident	Homicide	Suicide	Accident	Homicide	Suicide	Accident	Homicide
African Americans	.63*	.41***	6.95***	.62*	.41***	6.89***	.82	.43***	7.29***	.80	.42***	7.12***
Hispanics	.67	.97	4.76***	.57	.97	4.71***	.95	1.04	5.14***	.94	1.03	5.13***
Sociodemographic Factors												
Age (26-29)												
15-17	5.31***	4.23***	4.15***	4.65***	4.17***	4.03***	4.70***	4.10***	3.99***	4.59***	4.04***	3.80***
18-21	3.60***	4.60***	6.21***	3.40***	4.56***	6.09***	3.18***	4.46***	5.98***	3.08***	4.34***	5.76***
22-25	2.20***	2.11***	2.44***	2.10**	2.10***	2.41***	1.98**	2.04***	2.35***	1.93**	1.99***	2.24***
Female (Male)	.29***	.52***	.27***	.30***	.52***	.27***	.32***	.54***	.27***	.32***	.54***	.28***
Household Income (Middle or High)												
Low Income	.69	.92	1.20	.69	.92	1.20	.87	.97	1.27	.67	.96	1.21
Missing Income	1.00	.86	.99	1.05	.87	.10	1.07	.88	.10	1.06	.88	.98
Married (Others)	1.57*	1.44*	1.30	1.56*	1.45*	1.30	1.41	1.41*	1.26	1.40	1.42**	1.26
Living Arrangement (Live with Relatives)												
Live Separately with Relatives	1.52	1.63**	2.73***	1.50*	1.63**	2.73***	1.58*	1.67**	2.76***	1.56*	1.65**	2.77***
Live Together/Separately with Non-relatives	1.42	1.24	1.39	1.41	1.24	1.39	1.44	1.29	1.40	1.41	1.27	1.36
Physical Disability (none)	.09***	.15***	.10***	.010***	.15***	.10***	.09***	.15***	.09***	.09***	.15***	.09***
Missing Physical Disability	1.33	3.58***	3.24***	1.34	3.59***	3.25***	1.13	3.54***	3.05**	1.12	3.52***	2.98**
Life Style Factors												
Mental Health Problems (none)	1.42	.42***	.44***	1.03	.40***	.40***	1.03*	.40***	.40***	.97	.38***	.36***
Risk-Taking Behaviors												
Substance Use (none)	1.97**	1.12	1.55	1.72*	1.08	1.48	1.67*	1.10	1.49	1.57*	1.04	1.37
Intoxicated Driving (never)	1.53	2.61**	.68	1.36	2.55**	.65	1.39	2.45*	.64	1.34	2.36*	.61
Binge Drinking (never)	1.88*	2.67***	2.01*	1.83*	2.64***	1.99*	1.69*	2.58***	1.95*	1.66*	2.52***	1.87*
Religious Involvement (Frequently)												
Never	1.99**	1.47**	2.20***	1.91**	1.47*	2.13***	1.88**	1.47*	2.12***	1.80*	1.41*	1.96***
Sometimes	3.41***	1.65**	2.37***	3.14***	1.63**	2.32***	3.41***	1.66**	2.35***	3.26***	1.58**	2.15**
Small Social Network (large)	1.16	.67**	.69	1.12	.67**	.69	1.19	.68*	.70	1.18	.67*	.68
Antisocial Behaviors (none)				2.60***	1.17	1.30	2.36***	1.14	1.27	2.21***	1.08	1.15
Firearms (none)												
One Firearm							4.19***	1.31	1.65	4.25***	1.33	1.67
Multiple Firearm							3.38***	1.31	1.32	3.37***	1.31	1.32
Missing Firearm							1.71	.77	1.21	1.65	.75	1.18
Lower Moral Standard (Highest)										1.73	1.65**	2.63***

* P <.05; **P<.01; ***P<.001

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