Trends in US deaths due to legal intervention among black and white men, age 15-34 years, by county income level: 1960-2010

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To inform current national discussions about the deaths of black men due to the police, 1 we present novel data on long-term trends (1960-2010) in deaths due to legal intervention (i.e., deaths due to law enforcement actions) among US black and white men, by county income level. Among the three health studies investigating trends in this outcome, one focused on the total US population for 1962-1993, 2 one documented a marked excess for young adult black as compared to white men for 1979-1997, 3 and the third reported on systematic underreporting of such deaths, overall and by race/ethnicity and age, for 1976-1998; 4 none included socioeconomic data.

Methods

We analyzed US national mortality data for 1960-2010, 5 6 using individual-level mortality records and census denominator data stratified by age, gender, and race/ethnicity, aggregated to the county level, and to which we have appended the corresponding year-specific US county median family income data, categorized into quintiles. 7 We report trends (3-year moving average mortality rates) for the two main groups at risk: US black and white men, age 15-34.

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Results

Between 1960 and 2010, 15699 US deaths were classified as due to legal intervention, of which 63.3% (n=9934) occurred among men age 15-34. Among these men, 5489 were classified as white (55.3%) and 4204 as black (42.3%), a percentage 3 to 4 times that for the US black population (e.g., 1960: 10.5% black, 88.6% white; 2010: 12.6% black, 72.4% white). Only rates for the black men exhibited a sharp rise and fall (1960s-1970s) followed by a post 1980-plateau; rates for the white men exhibited far less variation (Figure 1, Table 1). The rate ratio for black vs. white men for death due to legal intervention always exceeded 2.5 (median: 4.5) and ranged from 2.6 (95% confidence interval [CI] 2.1, 3.1) in 2001 to 10.1 (95% CI 8.7, 11.7) in 1969, with the relative and absolute excess evident in all county income quintiles (Table 1).

Discussion

Our results indicate that the excess black vs. white mortality rate among men age 15-34 due to legal intervention is both longstanding – and modifiable. Given documented greater underreporting of black vs. white homicides by police officers, the results also likely underestimate the black vs. white excess. Moreover, the lack of sharp difference by county income quintile, post-1980, stands in contrast to well-documented inequities by county income level for both infant mortality and premature mortality (death before age 65), suggesting that societal determinants of deaths due to legal intervention are driven by additional or different aspects of societal inequality. We cannot, based on the limited data available, address debates over whether our findings reflect racially biased use of excessive force. Nevertheless, the data presented provide context for the 2014 emergence of police killings as a highly visible topic. Repeated protests have taken place in most major US cities, about both the deaths themselves and also – in the two very high profile cases involving Michael Brown (Ferguson, Missouri) and Eric Garner (Staten Island, New York) – the decision of grand juries to decline recommending that criminal charges be filed for these deaths. Journalists report that these latest deaths and the responses of the criminal justice system have reignited the concerns and distress triggered by the 2012 acquittal of George Zimmerman, a volunteer neighborhood watchman who killed the teenager Trayvon Martin. In all three of these cases, the victims were unarmed Black American teenage boys or men. The dearth of health research on police killings and their impact on the families, neighborhoods, and communities affected is stark. When it comes to reckoning the toll of racial inequality, accountability requires counting. We offer these descriptive analyses to stimulate further investigation into the patterns, causes, and consequences of social inequalities in deaths due to legal intervention.

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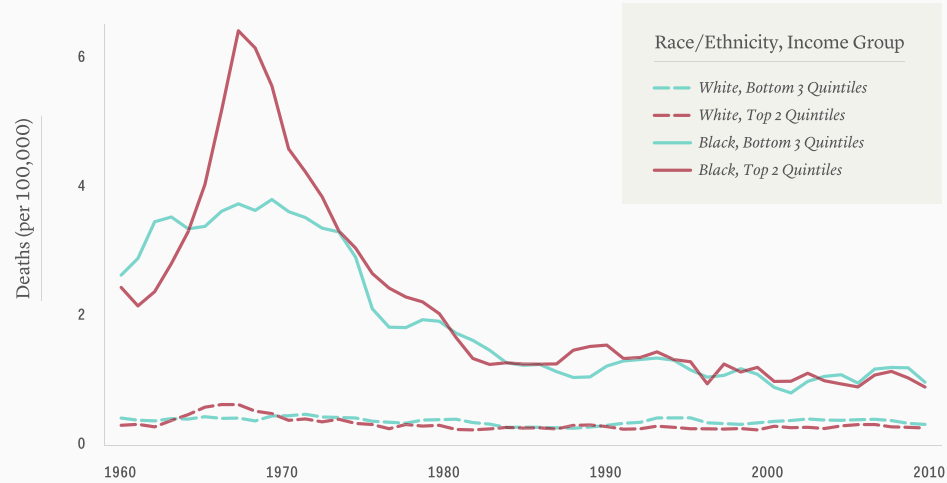*Pamela D. Waterman, MPH*

Figure 1. Trends in US mortality rates (3-year moving average), 1960-2010, for black and white men, ages 15-34, for deaths due to legal intervention, by county income quintile (lowest three versus top two)

International Classification of Diseases (ICD): version*	Death due to legal intervention
ICD-7 (1958-1967)	(E984) "Injury by intervention of police" (and not including: (E985) "Execution")
ICD-8 (1968-1978)	(E970-E977) "Legal intervention" (and excluding (E978)"Legal execution")
ICD-9 (1979-1998)	(E970-E977) "Legal intervention (and excluding (E978) "Legal execution")
ICD-10 (1999-20120)	(Y35.0-Y35.4, Y35.6-Y35.7) "legal intervention" (and excluding (Y35.5) "executions")
* ICD codes as listed at: http://www.wolfbane.com/icd/ (http://www.wolfbane.com/icd/)	

Table 1

US mortality rates (3-year moving average, per 100,000), and rate ratio and rate difference (and 95% confidence interval (CI)), for black and white men, ages 15-34, for deaths due to legal intervention, overall and by county income quintile: 1965, 1975, 1985, 1995, and 2005

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Year	Group	Death due to legal intervention			
		Rate		Rate ratio	Rate difference
		Black	White	RR (95% CI)	RD (95% CI)
1965	Total	3.33	0.44	7.65 (6.48, 9.02)	2.90 (2.51, 3.28)
	Income quintile:				
	Q1 (low)	2.33	0.36	6.45 (4.30, 9.72)	1.97 (1.35, 2.59)
	Q2	4.78	0.35	13.60 (9.44, 19.76)	4.43 (3.38, 5.48)
	Q3	3.36	0.51	6.57 (4.59, 9.38)	2.85 (2.00, 3.69)
	Q4	3.21	0.59	5.47 (3.78, 7.84)	2.62 (1.72, 3.52)
	Q5 (high)	3.43	0.36	9.61 (6.15, 14.93)	3.07 (2.01, 4.14)
1975	Total	2.96	0.39	7.56 (6.52, 8.77)	2.57 (2.26, 2.87)
	Income quintile:				
	Q1 (low)	2.27	0.45	5.03 (3.63, 6.98)	1.82 (1.31, 2.33)
	Q2	3.33	0.38	8.67 (6.29, 11.99)	2.94 (2.26, 3.62)
	Q3	3.53	0.44	8.02 (5.68, 11.25)	3.09 (2.19, 3.99)
	Q4	3.37	0.38	8.93 (6.50, 12.31)	3.00 (2.30, 3.69)
	Q5 (high)	2.46	0.30	8.13 (5.21, 12.53)	2.16 (1.36, 2.95)
1985	Total	1.25	0.28	4.48 (3.71, 5.39)	0.97 (0.79, 1.15)
	Income quintile:				
	Q1 (low)	0.91	0.29	3.08 (1.98, 4.75)	0.61 (0.31, 0.91)
	Q2	0.86	0.22	3.87 (2.28, 6.43)	0.64 (0.30, 0.98)
	Q3	2.03	0.34	6.03 (4.24, 8.58)	1.69 (1.19, 2.19)
	Q4	1.37	0.31	4.46 (2.98, 6.62)	1.06 (0.65, 1.47)
	Q5 (high)	1.08	0.23	4.61 (2.63, 7.80)	0.84 (0.38, 1.31)
1995	Total	1.21	0.36	3.37 (2.81, 4.02)	0.85 (0.68, 1.02)
	Income quintile:				
	Q1 (low)	1.10	0.57	1.94 (1.35, 2.77)	0.53 (0.20, 0.87)
	Q2	0.96	0.26	3.73 (2.30, 5.98)	0.71 (0.35, 1.06)
	Q3	1.43	0.47	3.04 (2.11, 4.33)	0.96 (0.55, 1.36)
	Q4	1.41	0.31	4.56 (3.02, 6.83)	1.10 (0.67, 1.53)
	Q5 (high)	1.13	0.21	5.49 (3.19, 9.27)	0.92 (0.48, 1.37)
2005	Total	0.94	0.37	2.57 (2.12, 3.09)	0.58 (0.43, 0.72)
	Income quintile:				
	Q1 (low)	0.87	0.37	2.33 (1.54, 3.48)	0.49 (0.21, 0.77)
	Q2	0.89	0.41	2.16 (1.42, 3.24)	0.48 (0.17, 0.79)
	Q3	1.19	0.41	2.89 (1.93, 4.28)	0.78 (0.40, 1.16)
	Q4	0.76	0.34	2.22 (1.35, 3.55)	0.42 (0.11, 0.73)
	Q5 (high)	1.09	0.30	3.65 (2.21, 5.89)	0.79 (0.37, 1.21)

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1. Walters J. *Thousands in New York march over Garner and Brown police deaths*. The Guardian. Accessed January 8, 2015.

2. Ikeda RM, Gorwitz R, James SP, Powell KE, Mercy JA. *Trends in fatal firearm-related injuries, United States, 1962-1993*. Am J Prev Med 1997; 13(5):396-400.

3. Sikora AG, Mulvihill M. *Trends in mortality due to legal intervention in the United States, 1979 through 1997*. Am J Public Health 2002; 92(5):841-843.

4. Loftin C, Wiersema B, McDowell D, Dobrin A. *Underreporting of justifiable homicides committed by police officers in the United States, 1976-1998*. Am J Public Health 2003; 93(7):1117-1121.

5. National Center for Health Statistics. *Compressed Mortality File: Years 1968-1978 with ICD-8 Codes, 1979-1988 with ICD-9 Codes and 1999-2010 with ICD-10 Codes*. Accessed January 8, 2015.

6. National Office of Vital Statistics, Public Health Service, US Department of Health, Education and Welfare. *Documentation of the detail mortality tape file (1959-1961, 1962-1967)*. Washington, DC: US Department of Health, Education, and Welfare, 1969. Accessed January 8, 2015.

7. Krieger N, Chen JT, Coull BA, Beckfield J, Kiang MV, Waterman PD. Jim Crow and premature mortality among the US black and white population, 1960-2009: an age-period-cohort analysis. Epidemiol 2014; 25(4):494-504.