

WHY ARE DEATH RATES RISING IN THE WHITE POPULATION OF KANSAS?

The Role of Stress-Related Conditions



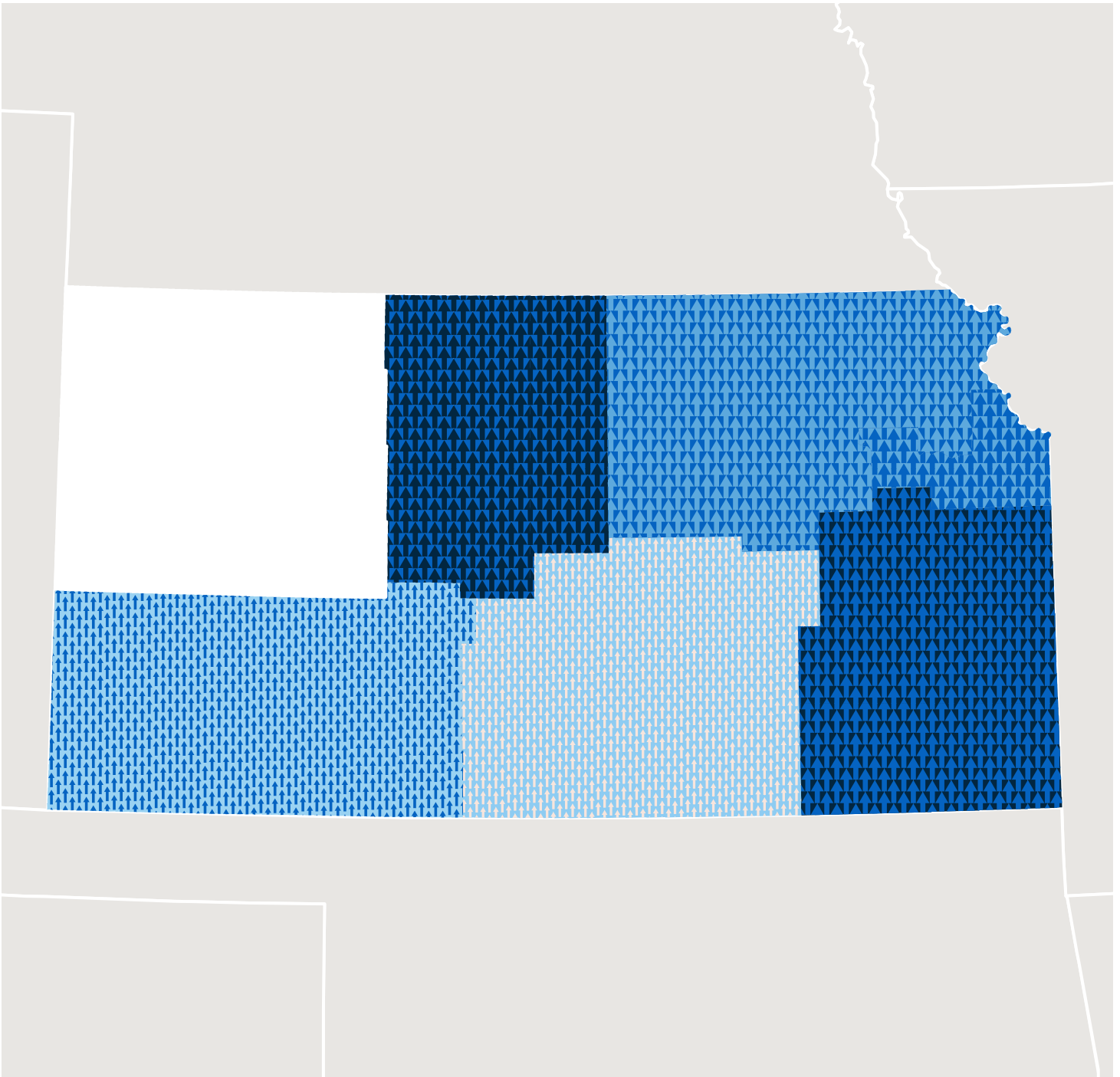
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RACE AND THE SOCIAL DETERMINANTS OF HEALTH

Research is clear that improved socioeconomic and environmental conditions are key factors for improving health and increasing life expectancy—across all populations. The persistently higher death rates that exist among blacks, American Indians and Alaskan Natives, and some Asians reflect the influence of exclusion and longstanding inequities in areas such as education, housing, and economic opportunity. For example, in 2010–2014 the death rate among blacks in Kansas was 1.2 times higher than that of the white population; that of American Indians was 1.8 times higher.

a. For simplicity, this report uses “whites” or “white population” as shorthand to refer to non-Hispanic whites (those who were not coded as Hispanic). The study focuses on the non-Hispanic white population, with the expectation that understanding the causes of this phenomenon among whites could be relevant to all racial and ethnic groups, who may be vulnerable to increases in death rates from the same causes.

The subject of this study—whether the white^a population in Kansas is experiencing a rise in death rates from certain causes—does not, and should not, distract attention from addressing the causes, historic and otherwise, of the inequities that have undermined the health of other racial groups. While understanding the factors responsible for recent mortality trends among whites in Kansas is important to addressing the public health crisis in that population, of equal importance is determining if these factors could signal disturbing health trends that could be affecting other groups. This report helps underscore the importance of addressing the root causes of poor health—including social, economic, and environmental conditions—and of adopting policy solutions that can ensure opportunities for optimal health among Kansans of all backgrounds.

BACKGROUND FOR STUDY

For the past century, death rates have generally been decreasing in the United States and other industrialized countries. However, several studies have reported rising death rates among certain groups of whites in the United States, especially those who are middle-aged.^{1–3}

This issue brief presents an examination of Kansas’ vital statistics from 1995 to 2014 to help understand whether mortality rates

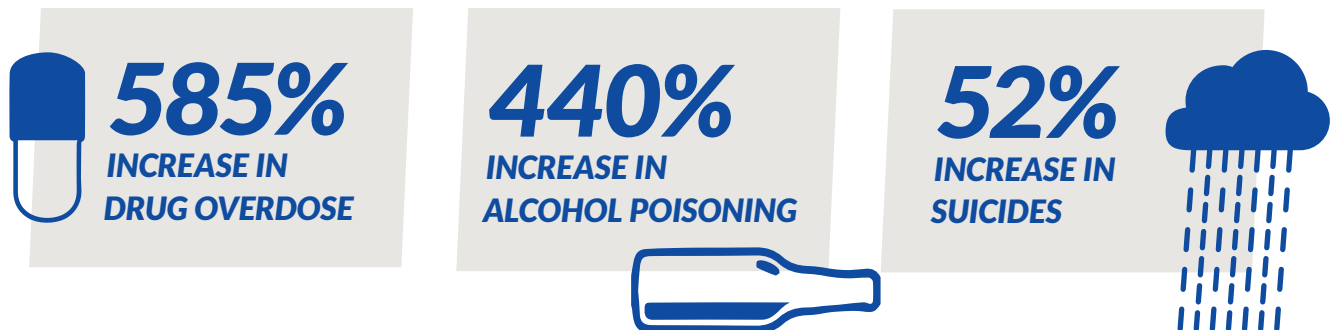
- b. Unless otherwise noted, trends in death rates in this report refer to age-adjusted rates, in which the “crude” mortality rate was recalculated to account for changes in the age distribution of the population over time.
- c. Among whites ages 25–64 years, death rates (from all causes) increased between 1999 and 2014 in five counties (Allen County, Cherokee County, Coffey County, Morton County, and Reno County) and increased after 2000 in Saline County. Among those ages 30–59 years, significant increases occurred in seven counties: Allen County, Barber County, Barton County, Cherokee County, Montgomery County, Reno County, and Saline County. Full details are in the Technical Supplement.
- d. Between 1995 and 2014, whites ages 25–64 years experienced a significant increase in death rates from (1) drug overdoses, (2) alcoholic liver disease, (3) suicides, (4) pedestrian transport accidents, (5) motorcycle transport accidents, (6) falls, (7) drownings, (8) chronic lower respiratory disease, (9) pneumonitis, (10) viral hepatitis, (11) liver cancer, (12) obesity, (13) essential hypertension, (14) cardiomyopathy, (15) renal failure, (16) sepsis, (17) anoxic brain damage, and (18) uterine cancer. See Technical Supplement for details.

are rising in the white population of Kansas and, if so, where and why. The report includes a summary of findings as well as detailed comparisons of trends across seven regions of the state and its 105 counties. The study was conducted for the Sunflower Foundation: *Health Care for Kansans*, in coordination with the Kansas Health Institute, and through a partnership between the Center on Society and Health at Virginia Commonwealth University and the Graduate School of Public Health at the University of Pittsburgh.

WHICH DEATH RATES ARE RISING IN THE WHITE POPULATION OF KANSAS?

Although overall death rates^b in the white population in Kansas decreased between 1995 and 2014,^c whites experienced a smaller relative decrease in mortality than did blacks and Hispanics (see Technical Supplement). Among whites ages 25–64 years, there was no decrease in all-cause mortality between 1995 and 2014, and death rates from 18 specific causes^d increased significantly. Many of these were “stress-related conditions” (SRC), such as fatal drug overdoses, deaths from alcohol abuse (e.g., alcohol poisoning, alcoholic liver disease), and suicides.

The alarming rise in drug and alcohol abuse and suicides has been reported elsewhere in the United States—what some have called “deaths of despair.”⁴ SRC deaths in Kansas among whites ages 25–64 years increased by 112% between 1995 and 2014. Three SRC conditions—drug overdoses, alcoholic liver disease, and suicides—accounted for almost half (48%) of the excess deaths caused by rising death rates in this population.



The rise in death rates from drug and alcohol abuse and suicides among whites in Kansas ages 25–64 years was striking:

Drugs: Death rates from accidental drug overdoses increased by 585% between 1995 and 2014 among young and middle-aged whites (ages 25–64 years), accounting for almost 700 excess deaths between 2000 and 2014. In 2010–2014 alone, more than 800 whites ages 25–64 years died from accidental drug overdoses. Fatal drug overdoses also became more pronounced at even younger ages between 1995 and 2014, increasing by 630% among whites ages 20–24 years.

Alcohol: Death rates from alcoholic liver diseases increased by 54% between 1995 and 2014 among whites ages 25–64 years, with the death rate from cirrhosis in particular increasing by 48%. The death rate from alcohol poisoning (binge drinking) increased by 440% between 2000 and 2014.^e

Suicide: The suicide rate among whites ages 25–64 years increased by 52% between 1995 and 2014, more than doubling (106% increase) among those ages 50–54 years.

- The rate of suicides involving firearms—the most common method of suicide among whites ages 25–64 years—increased by 42% between 1995 and 2014, whereas suicides not involving firearms increased by 64%.
- Hanging, strangulation, or suffocation were the most common forms of non-firearm suicide, with the rate increasing by 135% between 1995 and 2014 (179% among those ages 25–29 years and 199% among those ages 45–49 years).

Although other studies also have reported that white Americans have experienced higher death rates from drug overdoses, alcoholism, and suicide, our detailed analysis also found dramatic increases in deaths from organ diseases in Kansas. Of the 18 causes^d for which mortality increased between 1995 and 2014 among whites ages 25–64 years, organ diseases accounted for 49% of the excess deaths. The medical disorders responsible for

e. Some of the increase in deaths from alcohol poisoning may reflect a change in coding that occurred in 2007–2008.

f. Alcoholic liver disease, another organ disease, is discussed earlier as a stress-related condition resulting from alcohol abuse.

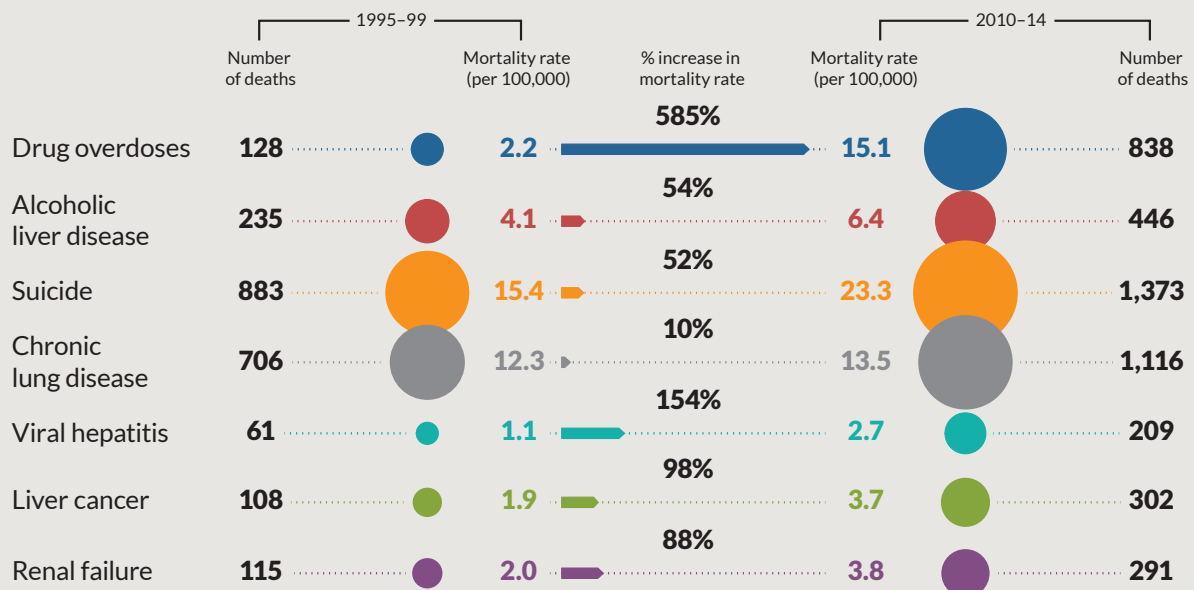
these deaths included viral hepatitis, liver cancer, heart disease, and other organ diseases, many having potential links to substance abuse and trauma (e.g., unintentional injuries), among other risk factors.^f Examples are shown in Figure 1.

Viral hepatitis: The use of injectable drugs increases the risk of certain viral infections of the liver, such as hepatitis C, a chronic liver disease that can be fatal. Death rates from viral hepatitis among whites in Kansas ages 25–64 years increased by 154% between 1995 and 2014.

Liver cancer: Hepatitis C and other kinds of viral hepatitis increase the risk of liver cancer. Death rates from liver cancer increased by 98% among whites ages 25–64 years between 1995 and 2014. Death rates among those ages 65–69 years also increased significantly.

Heart disease: Alcohol consumption is among the risk factors for a variety of cardiovascular disorders. For example, the death

Figure 1. Increases in deaths among whites ages 25–64 years in Kansas, 1995–2014



Size of colored circles is proportional to the absolute number of whites ages 25–64 years in Kansas who died from specific causes. Percentages in the center of the diagram refer to the proportional increase in the adjusted death rate from specific causes. Deaths from drug and alcohol poisoning refer to accidental overdoses.

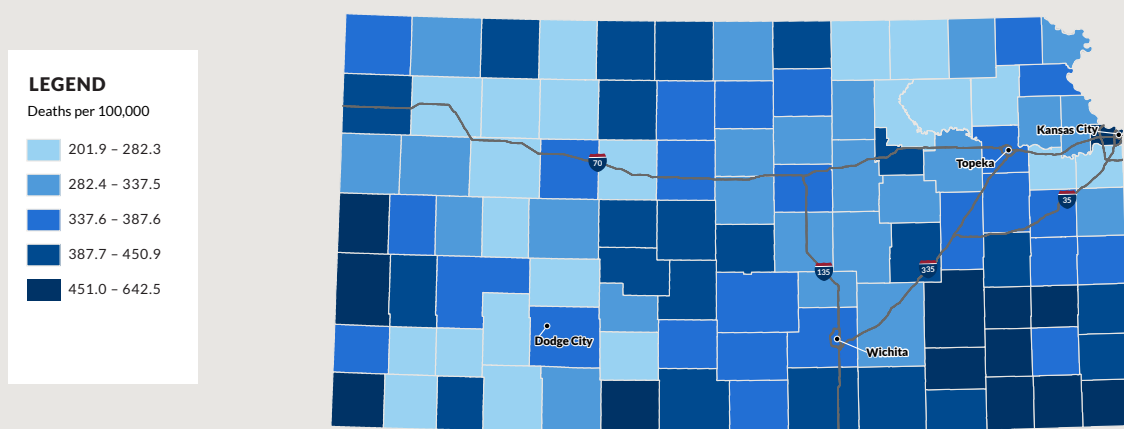
rate from essential hypertension among whites ages 25–64 years increased by 104% between 1995 and 2014, and that of cardiomegaly (enlarged heart) increased by 281% after 2000. Among whites ages 30–59 years, the death rate from heart failure increased by 101%.

White adults ages 25–64 years also experienced significant increases in death rates from other causes, such as chronic lower respiratory disease, obesity, kidney failure, sepsis, aspiration pneumonia, anoxic brain damage, and uterine cancer. A variety of factors could be responsible for these trends, but common contributors could include increased smoking, overeating, drug and alcohol use, oversedation, and catastrophic damage to vital organs.

The death rate from falls among whites ages 25–64 years increased by 45% between 1995 and 2014, and the rate of fatal drownings increased by 82% after 2000. Some of these deaths may have been associated with intoxication, although other factors (e.g., pedestrian deaths due unsafe street design or distraction by cell phones) may be to blame.

More details on specific cause of death increases are available in the accompanying Technical Supplement.

Figure 2. Age-adjusted all-cause mortality, non-Hispanic whites ages 25–64 years, by county, Kansas, 2010–2014

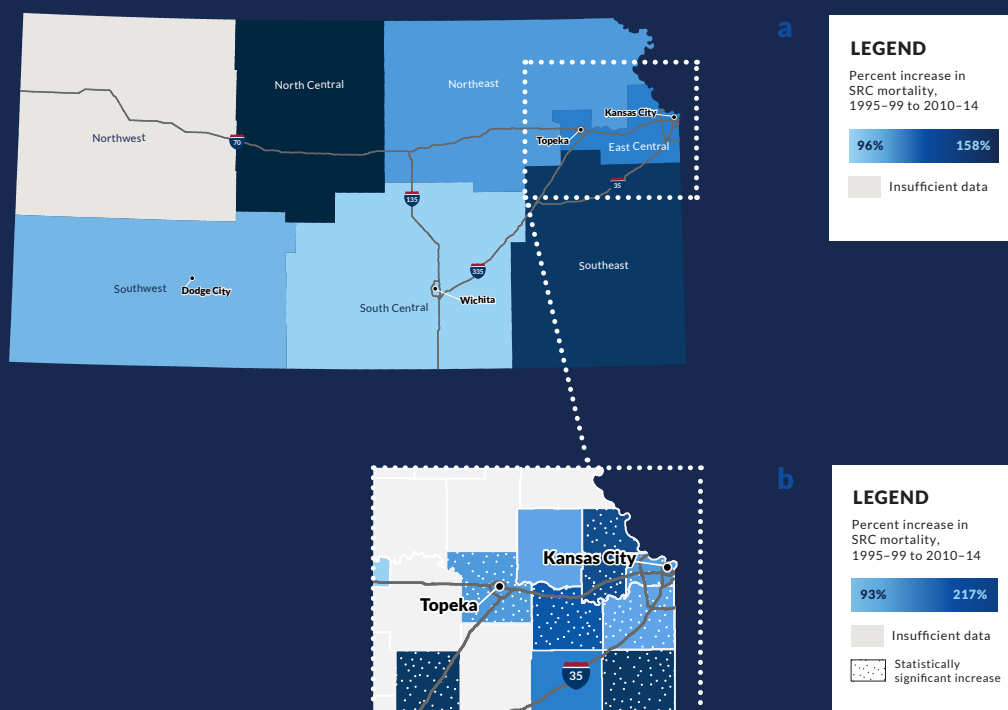


WHERE AND WHY IS THIS HAPPENING?

- g. SRC mortality increased by 87% in the Northwest region between 1995 and 2014, but this increase did not achieve statistical significance.
- h. Southeast Kansas was the only region of Kansas to experience a statistically significant increase in all-cause mortality (12%) and in mortality from chronic lower respiratory disease (40%) between 1995 and 2014.

SRC mortality among whites ages 25–64 years increased significantly between 1995 and 2014 in all but one region of Kansas.^g The largest relative increase (158%) occurred in North Central Kansas. Southeast Kansas,^h where death rates from all causes were the highest in the state (Figure 2), experienced the second highest relative increases in SRC mortality (147%), followed by the East Central (115%) and Northeastern (112%) regions (Figure 3a). The East Central region is home to the cities of Kansas City, Topeka, and Lawrence, and the Northeast region is home to Manhattan and Salina. Analysis at local,

Figure 3. Relative (%) increase in age-adjusted mortality from stress-related conditions between 1995–1999 and 2010–2014 by (a) region and (b) county, in Kansas



SRC=stress-related conditions. Increases in mortality from stress-related conditions refer to whites ages 25–64 years. Data were suppressed for many counties due to small numbers of deaths.

sub-regional levels was hampered by small population counts; data in 58 counties in Kansas were insufficient to calculate relative changes in death rates between 1995 and 2014. Counties with the largest relative (and statistically significant) increases in SRC mortality included Barton County (298%) in the North Central region and a number of counties in Southeast Kansas—including Cherokee County (309%), Miami County (217%), and Lyon County (201%).

Figure 3b shows SRC increases by county in the metropolitan regions of Kansas City and Topeka; jurisdictions with the dot pattern had statistically significant trends. Wyandotte County—home to Kansas City—had the highest SRC mortality rates but the lowest relative increase (83%) between 1995 and 2014—whereas Leavenworth County and Douglas County experienced the region’s largest relative increases (178% and 158%, respectively). SRC mortality increased by 129% in Shawnee County, home to Topeka, and by 115% in Johnson County, home to Overland Park. In Johnson County, the state’s most populous county, the number of whites ages 25–64 years was large enough to register increases in specific causes of death between 1995 and 2014. For example, whites in this age group experienced a 425% increase in the rate of fatal drug overdoses and an 84% increase in suicides. The rate of suicides involving hanging, strangulation, or asphyxiation in Johnson County increased by 277%. Death rates from mental and behavioral disorders increased by 121%.

Sedgwick County, home to Wichita, is the second most populated county in the state and the most populated county in South Central Kansas. Whites ages 25–64 years in this county experienced a 95% increase in SRC mortality between 1995 and 2014, and a 597% increase in fatal drug overdoses. The suicide rate increased by 34%, including a 97% increase in suicides involving hanging, strangulation, or asphyxiation. The large population allowed measurement of increases in deaths from organ diseases between 1995 and 2014, including an increase in death rates from liver cancer (395%) and kidney failure (137%). Detailed mortality data for regions and counties throughout Kansas are available in the online Technical Supplement.

To understand what might be driving these trends, we examined more than 30 characteristics of the seven regions (and of the counties that experienced a significant increase in mortality rates). These factors included geographic and demographic characteristics, socioeconomic conditions, the physical and social environment, housing, transportation, and access to health care. We then examined how strongly these factors correlated with the relative increase in SRC mortality rates between 1995 and 2014.

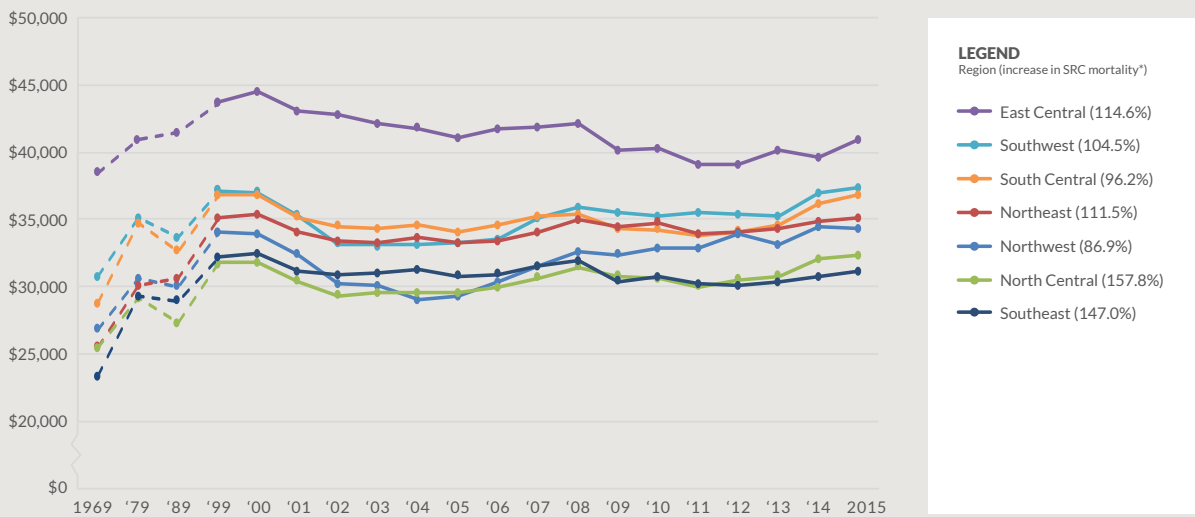
The largest relative increases in stress related conditions mortality between 1995 and 2014 occurred in regions with lower household incomes, greater poverty and income inequality, and a higher proportion of single-parent households.

We found that SRC mortality rates (in 2010–2014) among whites ages 25–64 were highest in regions of Kansas with greater poverty, unemployment, and violent crime; where more residents were covered by public insurance (e.g., Medicaid) and needed vehicles to commute to work; and where more households with children were headed by single parents. Counties with the highest SRC mortality rates had smaller populations; their residents tended to have less education, lower incomes, and greater poverty; and they were more likely to lack a vehicle or health insurance. The largest relative increases in SRC mortality between 1995 and 2014 occurred in regions with lower household incomes, greater poverty and income inequality, and a higher proportion of single-parent households. Counties with the largest relative increases were more rural and had older (pre-1950) housing stock. More details about this analysis are provided in the accompanying Technical Supplement.

We examined how socioeconomic conditions in Kansas had changed over time. Southeast Kansas consistently experienced greater economic distress, including the highest poverty and unemployment rates (see Technical Supplement). North Central and Southeast Kansas, the two regions with the largest relative increases in SRC mortality, had the lowest median household income, a trend that dates as far back as 1969 (Figure 4). However, the East Central region—where the third largest relative increase in SRC mortality occurred—had the highest income levels in the state.

The population of Kansas has faced economic challenges. As of 2016, Kansas ranked 42nd out of the 50 states in the growth of its gross domestic product, a trend attributed to declines in agriculture, as well as losses in oil and gas extraction, manufacturing, and management sectors. Between 2015 and 2016, the labor force decreased, especially in western Kansas,

Figure 4. Median household income in Kansas, by region, 1969–2015



SRC=Stress-related conditions. Income levels are inflation-adjusted to 1999 dollars.

*Percentages shown in parentheses in the legend refer to the relative increase in mortality from stress-related conditions in the region among whites ages 25–64 years between 1995–1999 and 2010–2014.

Sources: Data obtained from U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program, 1999–2015 (<https://www.census.gov/did/www/saipe/data/statecounty/data/index.html>)

and inflation-adjusted wages experienced little growth. Job growth occurred in metropolitan areas, much of it in the East Central (e.g., Kansas City) region.⁵

Frustration and hopelessness over these conditions would be expected to increase anxiety and depression. Over time, chronic stress, despair, and the pain they produce can induce harmful coping behaviors. Some people turn to food, resulting in overeating and the consumption of calorie-dense fast foods. Some people cope with stress by smoking, which increases the risk of tobacco-related diseases (e.g., emphysema). Some people are overcome by anxiety or depression; feelings of hopelessness can lead desperate individuals to commit suicide. Some people self-medicate with alcohol or drugs to relieve their psychic pain. And some people act out in violence, causing injury to others. It is a mistake to focus on (or blame) the behaviors that individuals adopt to cope with these stresses and ignore the policies and living conditions in communities that fuel these behaviors.

Further research is needed to fully understand why SRC mortality rates climbed more dramatically in certain regions of Kansas. A recent analysis found that unemployment rates in Kansas and Missouri predicted subsequent drug-related mortality rates.⁶ Socioeconomic pressures may be greater in rural areas, where access to resources is more remote and jobs are scarcer. For example, between 2015 and 2016, the largest share of job losses in western and north central Kansas were in construction (8%), professional and business services (6%), and natural resources and mining (6%). In non-metropolitan areas of Kansas, as in much of rural America, entire regions—not just individuals—have lost employment opportunities due to stresses on the agricultural sector and the collapse of major industries.⁵ For example, the coal, lead, and zinc mines that once fueled the economy of the Southeast region were largely closed by the mid-1970s due to mineral depletion.⁷ Modern industries are discouraged from locating in the region by poor transportation (e.g., lack of four-lane highways) and limited broadband access, and professionals have left local communities in search of better

jobs elsewhere.^{8,9} Between 2015 and 2016, the Southeast region lost 10% of its jobs in natural resources and mining.⁵ People in rural communities may no longer experience the same levels of social support that once helped individuals and families cope with these difficult challenges.

Research must also explore why middle-aged whites in particular have been disproportionately affected. One theory is that this age group is experiencing life conditions that differ starkly from past expectations and may be struggling with the cumulative stress of prolonged social and economic hardships. During the two decades this report studied (1995–2014), young and middle-aged whites—the age group examined here—experienced economic and social instability unlike that of their parents and grandparents.^{10–15} Many middle-class white households are no longer protected from the social disadvantage and economic insecurity that are common today and that people of color have experienced for generations.

Many middle-class white households are no longer protected from the social disadvantage and economic insecurity that are common today and that people of color have experienced for generations.

Although these behaviors may be a direct response to economic stresses, the phenomenon is probably more complex. Although the largest spikes in mortality occurred in rural areas struggling with economic challenges, significant increases also occurred in metropolitan areas like Wichita, Topeka, and Kansas City. More nuanced explanations for health trends in the white population must therefore be considered, such as changes in the social cohesion of communities and difficulties whites may be facing in achieving the stability their parents once enjoyed. Hardships exist not only in rural Kansas but, increasingly, in

pockets of disadvantage in metropolitan areas. The opioid epidemic is a major contributor to drug overdoses but cannot explain increases in death rates across diverse conditions.

We know from research that a complex set of factors influences the health of individuals as well as communities. These influences include not only health care and individual behaviors, but also socioeconomic conditions and the environments in which we live. For example, physical activity, diet, and obesity are influenced by access to healthy food and the built environment (e.g., the presence of sidewalks, cycling paths, green space, and other amenities for physical activity). Health is also affected by access to education, employment, housing, and transportation, as well as to social conditions that shape health, such as community cohesion, resilience, and cultural norms. Prior research identified low educational attainment as an important predictor of rising mortality rates in the US white population.¹ These factors are especially important in understanding the inequities in health outcomes and mortality rates that exist among populations of color, and they may also explain rising mortality rates in the white population.

WHAT SHOULD BE DONE?

The increase in SRC death rates in the white population of Kansas requires further investigation—to learn what is causing this trend and how it is threatening other groups. This crisis underscores the urgent need for policy action to reduce health inequities for all Kansans. Health outcomes, from stress-related conditions to chronic diseases, will benefit from Federal, state, and local efforts to improve education and economic opportunity and to invest in communities—including those in urban, suburban, and rural settings. Particular attention is needed to address local conditions or exclusionary policies that close doors to social mobility, cut people off from their systems of support, and drive families into deeper despair. All populations in Kansas deserve the opportunity to be healthy and thrive within their families and communities.



TABLE 1: POLICY STRATEGIES TO ADDRESS RISING MORTALITY RATES

Address root causes by improving economic and social conditions for populations in need

Policy action by government and the private sector to improve job opportunities, increase wages, reduce poverty, and promote economic mobility

Reforms and investments to improve the quality of education—from preschool through high school—and to improve the affordability of college, vocational training, and professional education

Invest in communities

Economic development by business, investors, and philanthropy, and the promotion of new industry in marginalized and resource-poor rural counties

Civic engagement and cross-sector partnerships to leverage and target resources and expand opportunities to break the cycle of poverty

Cross-racial alliance building to understand and address common causes of health threats facing different racial and ethnic groups

Strengthen behavioral health services

Prevention, detection, and early treatment of drug and alcohol abuse—including the opioid epidemic

Strategies for suicide prevention, including better access to treatment for depression and other risk factors for suicide

Prepare the health care system for expanding caseloads

Affordable health care and insurance coverage, and strategies to address shortages in clinicians and facilities

Resources to address expanding caseloads among clinicians, practices, hospitals, emergency medical services for care at the scene, intensive care in the hospital, long-term care in rehabilitation facilities, and psychological counseling for mental illness and addiction

Conduct research on underlying causes

Investigation of the causal links responsible for rising death rates

Research by social scientists and economists to better understand the unique challenges facing young and middle-aged individuals across racial and ethnic, socioeconomic, and geographic backgrounds—and the economic and social conditions in impacted communities

This health crisis requires action by decision-makers in sectors outside of health to help boost the economy, increase wages, create jobs, reform education, strengthen social supports, and revitalize communities for all Kansans. The most promising solutions cut across sectors: investments in communities that improve the material wellbeing and health of families can also benefit education, workforce productivity, social cohesion, and the infrastructure and economic vitality of communities. Conversely, the neglect of disadvantaged communities—especially cutbacks that reduce access to health care, safety net programs, and community investments—can contribute not only to increased disease rates but also higher health care costs for employers and government and sicker workforces that weaken corporate competitiveness. Health care reforms that result in weakened coverage will, in the face of rising death rates, escalate the death toll.

CONCLUSIONS

The dramatic rise in opioid addiction and fatal overdoses has rightfully alarmed the public and policymakers. But *the opioid crisis is the tip of an iceberg*: many people are dying from the use of other drugs, alcohol abuse, the diseases they cause, and suicides. The death toll will not stop by attending only to drug abuse. Focusing upstream is an urgent priority: the root causes that are driving people to their deaths must be addressed. Addressing the economy and alleviating the hardships responsible for the chronic stress experienced by children and adults may do more to alleviate desperation and may save more lives than focusing exclusively on symptoms.

These upstream conditions are not solved by doctors and addiction specialists, but by policies that create the social and economic conditions necessary for each person, family, and community to be healthy and thrive—including strong schools, affordable housing, transportation options, and more. The increasing SRC death rates in the white population of Kansas, and the apparent anguish that families are experiencing, are poignant reminders of how much is at stake: not just the length of our lives but the health of our children, the stability of our economy, and the future of our communities.

ACKNOWLEDGMENTS

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