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Steptoe, Andrew, Angus Deaton, and Arthur A. Stone. 2015. "Psychological Well-being, Health, and Ageing." *Lancet* 385 (9968): 640–48.
Stone, Arthur A., Stefan Schneider, and James K. Harter. 2012. "Day-of-Week Mood Patterns in the United States: On the Existence of 'Blue Monday', 'Thank God It's Friday' and Weekend Effects." *Journal of Positive Psychology* 7 (4): 306–14.
Stone, Arthur A., Joseph E. Schwartz, Joan E. Broderick, and Angus Deaton. 2010. "A Snapshot of the Age Distribution of Psychological Well-Being in the United States." *Proceedings of the National Academy of Sciences* 107 (22): 9985–90.
United Nations (UN). 2014. Department of Economic and Social Affairs, Population and Development Database 2014. http://www.un.org/en/development/desa/population/publications/development/population-development-database-2014.shtml.
World Health Organization (WHO). *World Mortality Database*. Accessed 2014. http://www.who.int/healthinfo/mortality_data/en/.

Comment David M. Cutler

Anne Case and Angus Deaton have written a fascinating chapter on the relationship between life satisfaction, suicide, and pain. The chapter is just the tip of the iceberg of an enormous research project looking at measures of life satisfaction over time, across individuals, and across countries. This is a hugely important topic, and Case and Deaton are to be congratulated for taking it on. It is one of the central topics in demography and health today.

The present chapter looks at a piece of the puzzle: What is the relationship between self-reported life satisfaction and suicide? The model that Case and Deaton have in mind is something like figure 10C.1. People differ in their life satisfaction, shown by the solid line in the figure. In a rational model, suicide is chosen when life satisfaction is particularly low and the possibility of improvement is small. Thus, there is a cutoff point *s*, where people with lower life satisfaction than *s* commit suicide.

Now imagine that the distribution of life satisfaction shifts to the left, for example, because economic conditions become worse or health deteriorates. For any constant point *s*, the suicide rate will increase. Indeed it may do so to a great extent, depending on the curvature of the life satisfaction curve at *s* and the initial prevalence of suicide in the population.

The empirical component of the chapter examines the correlation between

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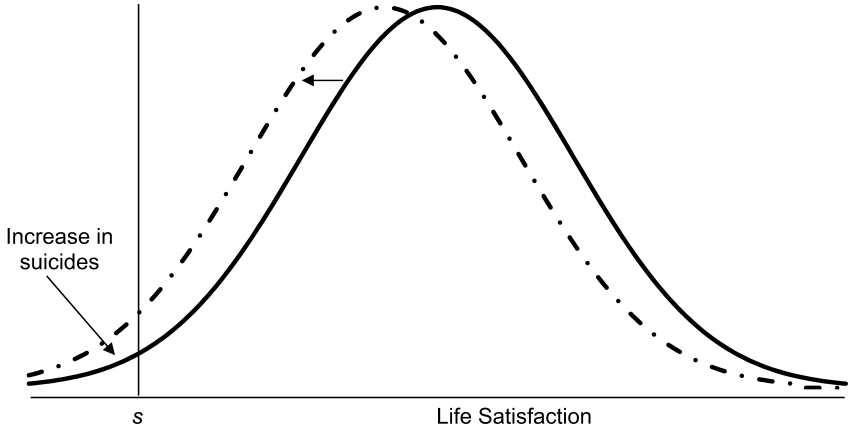

Fig. 10C.1 Life satisfaction and suicide

life satisfaction and suicide across various domains—age, socioeconomic status, time, and the like. The chapter reaches two conclusions. First, life satisfaction and suicide are not highly correlated, indeed the correlation is often of the wrong sign. Second, it is not clear whether life satisfaction or suicide is a better measure of well-being. Suicide seems to reflect temporal factors that one would not expect, such as day of the week, while life satisfaction is measured with difficulty.

These conclusions seem right to me, but I want to expand on a few features of the data and analysis. I will focus mostly on the suicide data, since that is the particularly intriguing part of the chapter.

Measurement

Measuring suicide is not entirely straightforward. Unlike most coding of cause of death, suicide has an intentionality component: Did the person mean to kill themselves? If they did not, the death would be classified as an accidental death, or perhaps a motor vehicle accident. Of course, intention is hard to determine after the fact. Is a death in a single-car crash a suicide or an unfortunate accident? What if the person knew they were at higher risk of death by driving rapidly after drinking, but chose to drive anyway?

These coding issues matter a great deal. Figure 10C.2 shows age-specific mortality from suicide, motor vehicle accidents, and accidental poisoning—largely deaths from heroin or opiate painkillers such as oxycontin. Motor vehicle fatalities and accidental poisoning are roughly comparable in magnitude to suicide through middle age. Thus, small changes in coding can have a large effect on reported suicides. Further, there has been a trend over time to report more suicides and fewer accidental deaths, at least for gun deaths

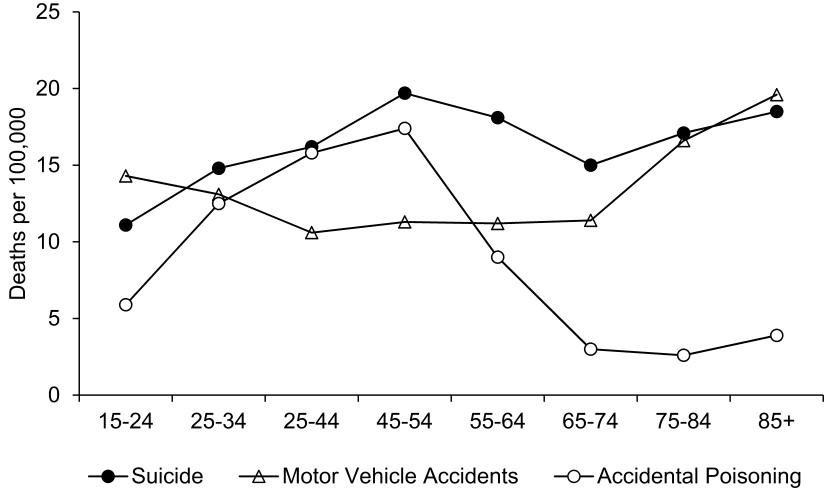

Fig. 10C.2 Death rates for causes that might be coded as suicides (2013)

(Cutler, Glaeser, and Norberg 2001). These changes can confound some of the correlations, though it is not obvious that they explain all of the findings.

Socioeconomics and Suicide

One way to consider the relationship between life satisfaction and suicide is to examine very large changes in socioeconomic status and see how they affect suicide. Case and Deaton examine a relatively short time series, where the socioeconomic trends do not vary greatly. I supplement this by examining long-term trends in suicide rates. Socioeconomic status deteriorated rapidly for the elderly in the Great Depression, then increased markedly with the expansion of Social Security and the creation of Medicare and Medicaid in the postwar period. Economic outcomes for younger age individuals, in contrast, have deteriorated over the past few decades. Do suicide rates track these trends?

Figure 10C.3 shows the evolution of suicide rates by age from 1900 to 2010. The results strongly suggest that socioeconomic changes influence suicide. Elderly suicide rates are always above those of younger ages—as first noted by Durkheim ([1897] 1966). Relative to this mean, elderly suicide rates increased substantially in the Great Depression and declined markedly after World War II. In contrast, suicide rates among younger cohorts (fifteen to thirty-four) have increased in the past few decades. At a very broad level, socioeconomic status does influence suicide rates.

That said, significant evidence shows that suicide is not fully rational. Case and Deaton use the intraweek pattern of suicide to suggest nonrationality.

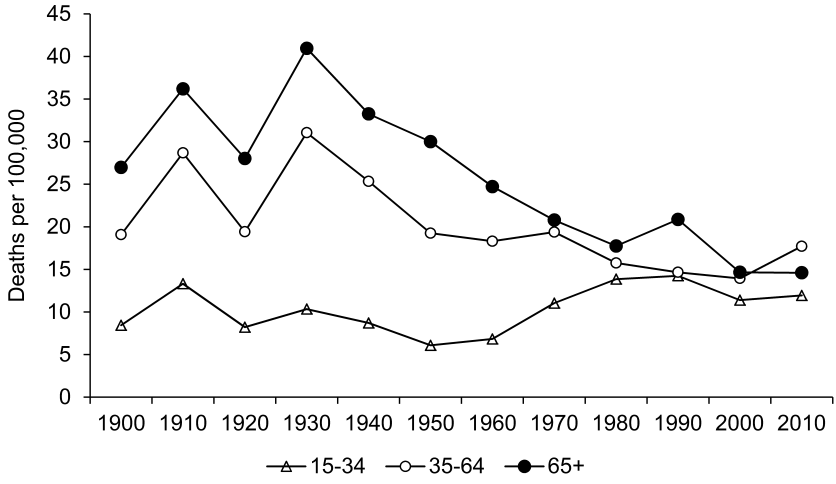

Fig. 10C.3 Suicide rate by age and year

Note: Death rates by ten-year age groups are weighted by population in 1970.

Other data confirm this view. Much of what we know about suicides comes from "psychological autopsies"—interviews with family and friends after a suicide. The most common factor that appears in psychological autopsies is mental illness (Cavanaugh et al. 2003), including depression, bipolar disorder, and anxiety. Seventy percent or more of people who commit suicide have a serious mental illness. It is possible that mental illness acts to focus attention on the present rather than the future ("telescoping"), thus reducing the value of possible future improvements in health.

Beyond mental illness, there are other factors predisposing to suicide that differ by age. As a rough approximation, material circumstances seem to be particularly important for suicide at younger ages. Job, financial, or legal factors are found in about one-third of suicides among people age forty to sixty-four (Hempstead and Phillips 2015). Further, suicide among non-elderly adults increases in recessions (Luo et al. 2011). Interestingly, relative material circumstance (underperformance relative to expectations) may matter more than absolute circumstance, perhaps explaining why blacks and other minority groups have lower suicide rates than whites (Cutler, Glaeser, and Norberg 2011). In older populations, the additional factors often involve pain—typically chronic pain that is not adequately treated—and disability (Conwell, Van Orden, and Caine 2011). Social isolation is another risk factor.

Much of the literature has focused on access to means of suicide. The idea is that suicide is often impulsive, and therefore ready access to guns or possibly harmful prescriptions increases the suicide rate. This certainly seems plausible in light of the high suicide rate in the mountain region of

the country—from Wyoming through Arizona. But looking at county data, Case and Deaton do not find evidence that gun availability has an impact on suicide. The same was true in analysis I did of youth suicide a few years ago (Cutler, Glaeser, and Norberg 2011).

The Importance of Pain

What is left at the end of the story is financial hardship and pain—both physical and mental. Mental pain is largely depression; physical pain is musculoskeletal—back pain, arthritis, and related maladies. Many suicides involve one or both of these types of pain. They are troubling in different ways. Depression is readily treatable. There are scales to diagnose depression, and medication and talk therapy have both been shown to improve outcomes. The major question is how to get diagnostic and therapeutic intervention to be used on a wider scale.

The diagnosis of physical pain is clearer than for depression, but treatment is difficult. Opiate medication is a common prescription, but may not be curative, and may actually worsen the problem. Has the rise in opiate medication use actually increased suicide for people with physical pain? Case and Deaton hint at this, but like with many other issues, it will have to await further research.

References

Cavanaugh, J. T. O., A. J. Carson, M. Sharpe, and S. M. Lawrie. 2003. "Psychological Autopsy Studies of Suicide: A Systematic Review." *Psychological Medicine* 33 (3): 395–405.

Conwell, Yeates, Kimberly Van Orden, and Eric D. Caine. 2011. "Suicide in Older Adults." *Psychiatric Clinics of North America* 34 (2): 451–68.

Cutler, David M., Edward L. Glaeser, and Karen E. Norberg. 2001. "Explaining the Rise in Youth Suicide." In *Risky Behavior among Youths: An Economic Analysis*, edited by Jonathan Gruber, 219–70. Chicago: University of Chicago Press.

Durkheim, E. (1897) 1966. *Suicide*. New York: Macmillan.

Hempstead, Katherine A., and Julie A. Phillips. 2015. "Rising Suicide among Adults Aged 40–64: The Role of Job and Financial Circumstances." *American Journal of Preventive Medicine* 48 (5): 491–500.

Luo, F., C. S. Florence, M. Quispe-Agnoli, L. Ouyang, and A. Crosby. 2011. "Impact of Business Cycles on US Suicide Rates, 1928–2007." *American Journal of Public Health* 101:1139–46.