

Supporting Information

Case and Deaton 10.1073/pnas.1518393112

SI Data

The NHIS and BRFSS both ask whether “health in general is excellent, very good, good, fair or poor,” and we report both positive (excellent/very good) and negative (fair/poor) responses. Table 2 reports responses to this question from the BRFSS; means from the NHIS are not statistically different from those reported. The NHIS asks questions on pain, which vary by type of pain. We score answers that a respondent had an ache or pain in a joint in the past 30 d, with symptoms first appearing more than 3 mo ago, as chronic joint pain, and answers to whether the respondent had pain in the past 3 mo lasting a whole day or more in the neck, face, or lower back pain that spread down either leg below the knee as neck pain, facial pain, and sciatica. The NHIS administers the Kessler six (K6) questionnaire, www.hcp.med.harvard.edu/ncs/k6_scales.php, scored to discriminate cases of serious psychological distress (38). We use a threshold of K6 greater than or equal to 13 as an indicator of serious psychological distress/serious mental illness. The BRFSS asks for the number of days in the past 30 mental (physical) health was “not good.” The NHIS asks about respondents’ ability to go about daily living: walking, climbing, standing, sitting, shopping, and participating in social activities. Answers on a five-point scale range from “not at all difficult” to “can’t do at all,” to which we add “do not do.” We report the fraction of people who respond that they have more than “a little difficulty” with each of these activities. The BRFSS asks respondents about current employment. Answers are coded as used for wages, out of work (less than/more than 1 y), homemaker, retired, student, or “unable to work.” We report the fraction responding that they are unable to work. The BRFSS calculates scores of heavy drinking, defined as more than one (two) drinks daily for women (men). NHANES provides results of enzyme tests, and we report the fraction with elevated enzyme readings: AST above a reference level of 48 U/L (units per liter) for men and 43 U/L for women, and ALT above a reference level of 55 U/L for men and 45 U/L for women. We use Mayo Clinic reference levels (39).

SI Materials and Methods

Calculations of deaths that would have been averted (1999–2013) use actual mortality rates observed each year compared with the rates that would have held in each year if the mortality rate had continued to fall at the speed observed for the period 1979–1998 (1.8% per year). We allow those who would have survived to face subsequent mortality risk, and we account for people aging out of the 45–54 age group. Define m_t as the mortality rate observed for whites aged 45–54 in year t . Define \widehat{m}_t as the mortality rate that would have occurred if the mortality rate had continued to fall at 1.8% per year. In 1999, lives saved (LS_{99}) are calculated using the white population aged 45–54 in 1999 (π_{99}): $LS_{99} = (m_{99} - \widehat{m}_{99}) \pi_{99}$. In 2000, lives saved are calculated based on the population that would have been observed if lives had been saved in 1999, net of those who would have died of other causes in 1999, who had not aged out of the group 45–54,

$$LS_{00} = (m_{00} - \widehat{m}_{00}) \widehat{\pi}_{00} \quad [S1]$$

where $\widehat{\pi}_{00} = \pi_{00} + 0.9 LS_{99} (1 - \widehat{m}_{99})$. For year t , we construct the population from which lives would have been saved if the mortality rate had continued to fall at 1.8% per year, $\widehat{\pi}_t = \pi_t + 0.9 LS_{t-1} (1 - \widehat{m}_{t-1}) + 0.8 LS_{t-2} (1 - \widehat{m}_{t-2}) (1 - \widehat{m}_{t-1}) + \dots + 0.1 LS_{t-9} (1 - \widehat{m}_{t-9}) (1 - \widehat{m}_{t-8}) \dots (1 - \widehat{m}_{t-1})$ and calculate lives saved in year t as in Eq. S1.

The temporal associations between suicide and poisoning mortality and morbidity are established for each of our morbidity markers using least squares regressions with census region fixed effects. For census region i in year t , we ran least squares regressions of suicide and poisoning mortality combined,

$$\ln(\text{mortality})_{it} = \beta \text{morbidity}_{it} + \alpha_i + u_{it}.$$

With the exception of neck pain and facial pain, we find a significant association β between suicide and poisoning mortality and morbidity for each morbidity marker presented in Table 2.