



Suicide and the Great Recession of 2007–2009: The role of economic factors in the 50 U.S. states



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ABSTRACT

After several decades of decline, U.S. suicide rates have risen since 2005, a trend driven largely by increases among those aged 45–64 that began in 1999. A prominent explanation for this pattern relates to deteriorating economic conditions, especially the sharp rise in unemployment associated with the Great Recession of 2007–2009. We pool data from 1997 to 2010 on the 50 U.S. states to examine the role of economic factors in producing the recent rise in suicide rates. Unlike prior studies, we examine trends in the total suicide rate and in the rate disaggregated by sex, age group and time period and include a number of important confounding factors in a multivariate analysis. We find a strong positive association between unemployment rates and total suicide rates over time within states. The association appears stronger in states that had higher female labor force participation rates over the period, suggesting that the Great Recession may generate greater levels of anomie in this context. Once we consider contextual factors such as female labor force participation, we find that rising unemployment had a similar adverse effect on male and female suicide rates. A positive effect of unemployment on temporal variation in middle-aged suicide exists but not for other age groups. Other economic characteristics, such as percent of manufacturing jobs and per capita income, are not associated with temporal variation in suicide rates within states but are associated with variation between states in suicide rates. The findings suggest that the following may be important components of effective prevention strategies: 1) specifically targeting employers and workplaces as important stakeholders in the prevention of suicide, 2) disseminating information about health risks tied to un/employment, and 3) linking the unemployed to mental health resources.

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1. Introduction

Between 2005 and 2010, the total suicide rate in the United States rose from 11 per 100,000 to 12.4 per 100,000, reversing the declining trend apparent since the late 1980s (Centers for Disease Control and Prevention, 2009). However, these overall figures conceal important differences in trends by age group. Suicide rates for individuals between the ages of 35 and 64 rose sharply during the first decade of the 21st century, an unusual pattern since suicide rates for this age group have either been stable or declining for decades. The young (ages 15–24) and the elderly (65 and older) exhibited no such concomitant increase during this period. The increase has been most pronounced for those aged 45–54, rising from 14.2 per 100,000 in 1999 to 19.6 per 100,000 in 2010; rates also rose

substantially for those aged 35–44 and 55–64 (Centers for Disease Control and Prevention, 2013). As a result of these patterns, the middle-aged replaced the elderly in 2004 and beyond as the age group with the highest risk of suicide, suggesting a changing epidemiology of suicide (Phillips et al., 2010; Hu et al., 2008).

A key explanation for the rising rates, one that has received significant attention by the national media, relates to the detrimental effects that deteriorating economic conditions may have had on those in midlife. Beyond rising bankruptcy rates over the period (Thorne et al., 2009) and increasingly unstable employment (less than one year of tenure) for males as they enter their thirties and beyond (Farber, 2007), the economic crisis of 2007–2009 may have hit the middle-aged particularly hard. Those between the ages of 35–64 are likely to be family breadwinners, sometimes financially supporting elderly parents in addition to dependent children or adult children, and thus face greater hardship during periods of economic recession and job loss. In contrast, the young and elderly are less likely to be in the labor force and often have the support of

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family and in the case of the elderly, social security. During the Great Recession, those between the ages of 45 and 64 experienced longer periods of unemployment than younger workers, and many were forced to delay retirement to recoup their losses (AARP, 2009; Dugas, 2009). Using data from the 2008 Health and Retirement study, McNerney et al. (2013) concluded that the wealth losses associated with the 2008 stock market crash significantly increased depressive symptoms and the use of antidepressants. Workplace interventions that promote coping and problem-solving skills during times of hardship, as well as increasing awareness of mental health services, have been suggested as effective suicide prevention strategies that may be useful for this highly vulnerable group (Stamm and Kirkwood, 2012; U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention, 2012).

The present study pools data from 1997 to 2010 on the 50 U.S. states to shed light on reasons for the recent rise in suicide rates, with a particular focus on the role of economic conditions. Several recent studies (e.g., Chang et al., 2013; Reeves et al., 2012) use both cross-national and U.S. data and a variety of approaches to provide evidence that the rising unemployment rates linked with the Great Recession are associated with increasing suicide rates. However, these studies typically examine the total suicide rate for a limited time frame, and those that study the recent period that captures the Great Recession investigate only the bivariate relationship between unemployment and suicide rates. We build on this prior work in the following ways. First, we examine not only the total suicide rate but also the suicide rate disaggregated by major age group and sex since time trends are not uniform across these different demographic groups. Second, we incorporate a number of possible confounding variables in our analysis, including demographic and social/cultural characteristics of time and place, to better isolate the effect of unemployment on suicide. Finally, we consider multiple measures of economic conditions and the interplay among them in their association with suicide rates.

2. The link between unemployment and suicide

Durkheim (1951), in his seminal statement on suicide, observed that across geographic areas such as countries, suicide rates are correlated with other social characteristics, such as religious composition and family structure. He hypothesized that low levels of social integration within a society lead to instability and lack of cohesion, producing excessive individualism and high rates of egoistic suicide. A lack of social regulation in societies produces anomie, an absence of norms and an inability of society to meet the population's needs and expectations, and corresponds to high rates of anomic suicide. Using this framework, Durkheim hypothesized that suicide rates would rise during periods of economic depression and economic boom because both extremes can be viewed as indicators of anomie. With rapidly changing economic prospects in either direction, a society may be unable to adapt quickly enough to sufficiently meet its members' needs and expectations, weakening social regulation. Furthermore, the rise in unemployment during periods of economic recession has implications for social integration. Social integration may be undermined directly as unemployed individuals have more limited access to social support systems and indirectly because unemployment can produce relationship problems and/or financial difficulties that create stress, as well as harmful coping mechanisms such as increased alcohol consumption (Maris et al., 2000). Hamermesh and Soss (1974) build upon these ideas to present an economic theory of suicide, which predicts that suicide will occur when there is no perceived utility to remaining alive and that hence variation in suicide deaths will occur by age and income level.

Researchers in many countries over the past two decades have used data prior to the current recession to examine an association between economic conditions, such as unemployment, and suicide rates, with mixed results especially for different sex/age groups (Berk et al., 2006; Blakely et al., 2003; Chang et al., 2009; Gerdttham and Johannesson, 2005; Luo et al., 2011; Morrell et al., 1993; Platt et al., 1992; Stuckler et al., 2009). Although cross-sectional analyses typically find limited support for a connection between economic conditions and suicide rates, longitudinal studies generally do show an association and support the more intuitive notion that suicide rates rise only during periods of economic recession (Stack, 2000). One of the most comprehensive studies (Luo et al., 2011) examined business cycles and suicide rates in the United States between 1928 and 2007, showing that the total suicide rate tends to rise during periods of economic recession and fall during expansions. The study found some variation in the relationship by age group, with the association observed for those between the ages of 25 and 64, but no such relationship for those aged 15–24 and over age 65. A study of 24 OECD countries including the United States found that the impact of unemployment on suicide rates can also vary according to a country's level of income—higher-income countries are more vulnerable to the effects of unemployment on suicide rates (Noh, 2009).

A number of studies, using both U.S. and cross-national data, are emerging that examine the effects of the recent Great Recession on rising suicide rates. Reeves et al. (2012) conducted a time trend analysis of suicide rates in the fifty U.S. states from 1999 to 2010, estimating the number of suicide deaths that would have occurred if the prior trend from 1999 to 2007 in suicide rates had continued and comparing it with the actual number that occurred. The authors concluded that there were close to 4800 excess deaths from suicide between 2007 and 2010 and attribute this excess to the onset of the Great Recession. Conducting a similar time-trend analysis on suicide data from 54 countries, Chang et al. (2013) found that the increases in suicide as a result of the 2008 global economic crisis occurred primarily among men. In addition, they determined that the positive bivariate association between unemployment and suicide rates across these 54 nations was stronger among males and in countries with relatively low unemployment levels before the crisis.

Although useful, there are limitations to these studies. A number of them examine the link between unemployment and suicide for different sex and/or age groups (Barr et al., 2012; Chang et al., 2013; Lopez Bernal et al., 2013; Saurina et al., 2013), but some only examine rates overall (De Vogli et al., 2013; Reeves et al., 2012; Stuckler et al., 2011). In addition, all such studies are either time trend analyses or examine bivariate associations between economic variables (e.g., the unemployment rate) and suicide rates; none include control variables for other factors that may confound the association. To our knowledge, no studies have rigorously explored the Great Recession of 2007–2009 as an explanation for rising rates of middle-aged suicides in the United States using multivariate analyses of the trend and multifaceted measures of economic context.

3. Research aims

The aim of this study is to test the hypothesis that deteriorating economic conditions have produced rising rates of suicide and that this association is stronger among the middle aged (45–64) than among the young (15–34) and old (65 and over). In addition to unemployment, we include other measures of economic conditions, namely female labor force participation rates, the percentage of jobs in manufacturing, and per capita

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