

Section 1

Introduction

Chapter

1

Global perspectives on suicidal behavior

Matthew K. Nock, Guilherme Borges, and Yutaka Ono

The question of why people behave in ways that are harmful to themselves has puzzled us for thousands of years. The decision of whether to live or die has been called the “fundamental question of philosophy” (Camus, 1955) and has been the focus of scholarly work by most major philosophers throughout history (e.g., Kant, Sartre, Locke, Hume). In the sciences, the existence of self-harm has presented a fundamental challenge to the belief that human and animal behavior is motivated by an innate and ever-present drive for self-preservation and gene survival (Dawkins, 1976; Lorenz, 1963; Wilson, 1978). Clinicians and clinical researchers also have been baffled by the problem of suicide and have struggled to understand why people kill themselves and how to prevent them from doing so (Durkheim, 1897; Freud, 1923; Menninger, 1938; Shneidman, 1998).

Despite centuries of scholarly consideration and scientific investigation, key questions about suicide remain surprisingly unanswered, and it continues to be one of the leading causes of death worldwide. Indeed, suicide accounts for more deaths each year than all wars and other forms of interpersonal violence combined – meaning that we each are more likely to die by our own hand than by someone else’s (World Health Organization, 2009). More alarming is that suicide is projected to be an even greater contributor to the global burden of disease in the coming decades (Mathers & Loncar, 2006). Despite these alarming statistics, we know relatively little about suicide. The purpose of this volume is to provide previously unavailable information about the occurrence of suicidal behavior around the globe – from a broad array of countries and cultures including those in the Americas, Europe, Africa, Asia and the Pacific, and the Middle East – in an effort to answer fundamental, and previously unaddressed, questions about this devastating problem.

Prior research on suicidal behavior

An impressive body of research currently exists that provides important information about suicidal behavior. However, despite the fact that thousands of studies have been conducted on this problem over the years, many basic questions remain. For instance, we know that the rate of suicidal behavior and suicide death skyrocket during adolescence, but we do not know why. We know that suicide runs in families, but we do not know how it is transmitted across generations. We know that people who try to kill themselves most often do so in the context of a mental disorder and stressful life events; however, we do not know which disorders or events convey the highest risk, how they might interact to increase risk, or why they sometimes lead to suicide.

Much of what we already know about suicide death and non-lethal suicidal behavior (i.e., suicide ideation, suicide plans, and suicide attempts) is reviewed in Chapter 2 of this volume. The rest of this book is focused on advancing our understanding of suicidal behavior in ways that overcome several of the long-standing limitations that have hindered progress in suicide research to date. Indeed, our inability to answer some of the basic questions about suicidal behavior is due not to a lack of effort, but to the existence of several serious challenges to studying suicidal behavior.

First, although suicide is a leading cause of death, suicide and suicidal behavior occur at fairly low base-rates in the general population. For instance, as discussed in Chapter 13, approximately 0.5% of adults report making a suicide attempt each year. This means that to obtain a sample of just 100 suicide attempters for study would require recruiting 20,000 participants from the general population.

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Even more participants would be needed to study suicide attempts in greater detail. Unfortunately, most prior studies have used relatively small, selected samples (e.g., several hundred hospital patients who have attempted suicide), raising concerns about the generality of the obtained results (Ioannidis, 2005). Even in cases in which larger samples have been used, they often have been restricted to people of a particular catchment area or clinical samples from only one region (e.g., Bertolote et al., 2005; Weissman et al., 1999). One could try combining data from across studies to achieve a large sample size; however, different studies typically use very different methods and measures of both suicidal behavior and the risk and protective factors being studied, making such combinations impossible.

Second, suicidal behavior is the result of a combination of a wide range of factors, and most studies lack the time and resources to carefully assess a very broad array of factors. As such, most prior studies of suicidal behavior have focused on a narrow range of potential predictors or treatment for such behavior. Moreover, most studies have examined predictors of the presence of suicidal behavior, but have not yet investigated what factors predict the transition from suicide ideation to suicide attempts, or what factors predict treatment receipt or barriers to obtaining treatment. These types of investigations are among those that require the larger sample sizes mentioned above, and their absence has left major questions about how suicidal behavior develops.

Third, perhaps because of the difficulty of recruiting and interviewing people who experience suicidal behavior, very few studies of suicidal behavior are replicated. The lack of attention to replication is, of course, a problem across many areas of science; however, it is particularly concerning for suicide research given the stakes at hand. Although many potential risk factors for suicidal behavior have been identified, the extent to which they are robust predictors in the general population, and across different parts of the world, remains unknown.

Overall, as a result of these limitations, progress toward understanding and preventing suicidal behavior has been slow. Indeed, one recent epidemiological study documented that although there has been a significant increase in the percentage of people with suicide ideation and behaviors receiving treatment, the rates of such behaviors have not changed as a result (Kessler et al., 2005).

WHO World Mental Health Survey Initiative study of suicidal behavior

This volume presents new data on suicidal behavior obtained from the World Health Organization (WHO) World Mental Health Survey Initiative (WMH). This study, described in great detail in Chapter 3, is a coordinated series of epidemiological surveys conducted in 28 different countries on six continents around the world (data from the first 21 WMH countries are included in this volume). The unique nature and design of this project provides an unprecedented opportunity to overcome each of the limitations of prior suicide research mentioned above.

One of the most important features of the WMH Surveys for suicide research is the size and representativeness of the sample. As outlined in Chapter 3, this study provides data from more than 100,000 participants who, in most cases, are from nationally representative samples. The nature of the study sample allows us, for the first time, to really examine suicidal behavior in a fine-grained way. On balance, it is important to note that although this study provides a unique opportunity to study non-lethal suicidal behavior (e.g., suicide ideation, suicide plans, and suicide attempts), because the WMH Surveys include only living respondents, we are not able to study suicide death *per se*. Although suicide ideation, plans, and attempts are the steps that lead up to suicide death (i.e., you cannot die by suicide without making a suicide attempt), prior research has revealed that there are important differences between those who make non-lethal suicide attempts and those who die by suicide (e.g., women are more likely to make suicide attempts, whereas men are more likely to die by suicide). This distinction should be borne in mind when reading and using the data presented in this volume.

Another valuable feature of the WMH Surveys is that they carefully assessed a wide range of suicidal behavior, including the: age-of-onset, age-of-offset, and persistence of suicide ideation, suicide plans, and suicide attempts, as well as the probability and timing of transitioning from one of these behaviors to the next. Chapters 4 and 5 of this volume carefully describe these aspects of suicidal behavior in greater detail than ever before possible. These are aspects of suicidal behavior that have not been widely reported in the literature, and studies of the persistence of suicidal behavior are almost completely absent from the field. As such, the data presented in these chapters are valuable not only for

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scientists who study suicidal behavior, but for clinicians and policy-makers interested in learning more about its occurrence in our communities.

Much of this volume, Chapters 6–12, presents data on a wide range of risk factors for suicidal behavior, including: sociodemographic factors (Chapter 6), parental psychopathology (Chapter 7), childhood adversities (Chapter 8), traumatic experiences during adulthood (Chapter 9), mental disorders (Chapter 10), and chronic physical conditions (Chapter 11). The last chapter in this section, Chapter 12, tests an integrative model of suicidal behavior that includes all of these risk factor domains. Many studies have tested risk factors that appear in each of these chapters; however, the large and representative sample size of the WMH Survey, the careful assessment of each risk factor domain and each suicidal behavior, and the comprehensive nature of the analyses conducted allow this study to provide more definitive findings on the nature of these risk factors than has been possible in prior studies. In a way, we view this effort as a “mapping” of the risk factors for suicidal behavior from a broad range of domains. Each chapter tests the bivariate and multivariate (i.e., unique) effects of each risk factor. We start with temporally prior risk factor domains in earlier chapters (e.g., sociodemographics, parental history) and add risk factor domains in later chapters while controlling for earlier results. At each step, we test the extent to which each risk factor predicts the onset of each suicidal behavior, the transition across suicidal behavior, and the persistence of suicidal behavior over time. We also examine how these effects differ across the lifespan, and across different countries around the world (i.e., high-income countries vs. middle-income countries vs. low-income countries). In this way, these chapters provide a more detailed picture of the nature and risk factors for suicidal behavior than has been possible in prior studies, including earlier studies using the WMH Survey data – as the publication of these findings in book form allows us to present the findings in a more expanded way than is possible in scientific journals.

The final section of this book is focused especially on providing clinically relevant information on suicidal behavior. Chapter 13 reports on the short-term (i.e., 12-month) risk factors for suicidal behavior; such information may be especially useful for clinicians working with suicidal individuals. This chapter also includes risk factor indices that synthesize the results of Chapters 6–12 into useable indices that can aid clinical decision-making about a patient’s current level of risk. Chapter 14 describes what the treatment of suicidal behavior looks

like around the world in terms of the rates and types of treatment receipt by suicidal people, the barriers to treatment, and the predictors of treatment receipt and barriers. The findings of this chapter are somewhat discouraging and paint a sobering picture of the long road that lies ahead for improving the treatment of suicidal people around the globe.

This volume concludes with a discussion of the scientific, clinical, and policy implications of the findings presented in this book, and offers recommendations for future efforts in each of these areas. The findings presented in this book are extremely comprehensive and detailed in nature, with dozens and dozens of tables of data in each section of the book. Our reason for including this level of detail is that the WMH Surveys provide a richer source of data on suicidal behavior than have ever been available, and so represent a veritable gold-mine of findings. We wanted to make these data maximally useful for current and future researchers, clinicians, and policy-makers, and providing a high level of detail achieves this end. However, these data are useless if they do not have impact beyond this book, and the last section of this volume provides concrete suggestions for ensuring such impact.

Global perspectives

The completion of the WMH Surveys and the preparation of this volume was truly a global effort, involving extensive interviews with more than 100,000 people living in 21 countries on six continents, as well as countless hours of work by first-rate research teams in each of these countries. This volume presents the collective efforts, and perspectives, of all of these respondents, and researchers. It is our hope that the information presented here will bring us just a little closer to understanding, and preventing, suicidal behavior around the globe.

References

- Bertolote, J. M., Fleischmann, A., De Leo, D., et al. (2005). Suicide attempts, plans, and ideation in culturally diverse sites: the WHO SUPRE-MISS community survey. *Psychological Medicine*, 35(10), 1457–1465.
- Camus, A. (1955). *The myth of Sisyphus* (J. O’Brien, Trans.). New York, NY: Alfred A. Knopf, Inc. (Original work published 1942).
- Dawkins, R. (1976). *The selfish gene*. New York, NY: Oxford University Press.

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Durkheim, E. (1897). *Suicide: A study in sociology* (ed. G. Simpson. Translated by J. A. Spaulding, G. Simpson). New York, NY: Free Press, 1951.

Freud, S. (1923). The ego and the id. In *The standard edition of the complete psychological works of Sigmund Freud* (Volume XIX, 1923–1925).

Ioannidis, J. P. (2005). Why most published research findings are false. *PLoS Medicine*, 2(8), e124.

Kessler, R. C., Berglund, P., Borges, G., Nock, M. K., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990–1992 to 2001–2003. *Journal of the American Medical Association*, 293(20), 2487–2495.

Lorenz, K. (1963). *On aggression*. San Diego, CA: Harcourt Brace.

Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine*, 3(11), e442.

Menninger, K. (1938). *Man against himself*. New York, NY: Harcourt Brace World.

Shneidman, E. S. (1998). *The suicidal mind*. New York, NY: Oxford University Press.

Weissman, M. M., Bland, R. C., Canino, G. J., et al. (1999). Prevalence of suicide ideation and suicide attempts in nine countries. *Psychological Medicine*, 29(1), 9–17.

Wilson, E. O. (1978). *On human nature*. Cambridge, MA: Harvard University Press.

World Health Organization. (2009). Data and statistics: Causes of death. <http://www.who.int/healthinfo/statistics/bodgbddeathdalyestimates.xls>. Accessed Oct. 4, 2009.

Section 1

Introduction

Chapter

2

The epidemiology of suicide and suicidal behavior

Matthew K. Nock, Guilherme Borges, Evelyn J. Bromet, Christine B. Cha, Ronald C. Kessler, and Sing Lee

Abstract

Suicidal behaviors are a leading cause of injury and death worldwide and information about the epidemiology of such behaviors is important for policy-making and prevention efforts. We reviewed government data on suicide and suicidal behaviors and conducted a systematic review of studies on the epidemiology of suicidal behaviors published from 1997 to 2007. Our aims were to examine the prevalence, trends, and risk and protective factors of suicidal behaviors in the U.S. and cross-nationally. The data revealed significant cross-national variability in the prevalence of suicidal behaviors, but consistency in the age-of-onset (AOO), transition probabilities, and the presence of key risk factors. Suicide is more prevalent among men, whereas nonfatal suicidal behaviors are more prevalent among women and among those who are young, unmarried, and have a psychiatric disorder. Despite an increase in the treatment of suicidal individuals over the past decade, incidence rates of suicidal behaviors have remained largely unchanged. Most epidemiological research on suicidal behaviors has focused on patterns and correlates of prevalence. The next generation of studies must examine synergistic effects among modifiable risk factors and protective factors. New studies must incorporate recent methodological advances in survey methodology and clinical assessment and results should guide ongoing efforts to decrease the significant loss of life caused by suicidal behaviors.

Introduction

Suicide is an enormous public health problem in the United States (U.S.) and around the world. Each year over 30,000 people in the U.S. and approximately

1 million people worldwide die by suicide, making it one of the leading causes of death (Department of Health and Human Services. Healthy People 2010, 2000; U.S. Public Health Service, 1999; WHO, 1996). A recent report from the Institute of Medicine estimated that the value of lost productivity due to suicide is \$11.8 billion per year in the U.S. (Goldsmith et al., 2002), and reports from the World Health Organization (WHO) indicate that suicide accounts for the largest share of intentional injury burden in developed countries (Mathers et al., 2003), and that suicide is projected to become an even greater contributor to the global burden of disease over the coming decades (Mathers & Loncar, 2006; Murray & Lopez, 1996). The seriousness and scope of suicide has led both the WHO (WHO, 2007) and the U.S. government (Department of Health and Human Services. Health People 2010, 2000; U.S. Public Health Service, 1999) to call for an expansion of data collection on the prevalence and risk factors for suicide and nonfatal suicidal behaviors to aid in planning public health responses and healthcare policy and for monitoring the rate of suicidal behaviors in response to policy changes and prevention efforts.

Addressing these calls, this paper provides a review of the epidemiology of suicidal behaviors and extends earlier reviews in this area (Borges et al., 1995; Bridge et al., 2006; Cantor, 2000; Cantor et al., 1996; Cheng & Lee, 2000; Kerkhof, 2000; Kessler & McRae, 1983; Levi et al., 2003; Monk, 1987; Moscicki, 1999; Spirito & Esposito-Smythers, 2006; Weissman, 1974; Wexler et al., 1978) in two important ways. First, this paper provides an update on the prevalence of suicidal behaviors over the past decade. The socioeconomic and cultural factors in which suicidal behaviors are embedded, such as the quality and quantity of mental health services, have changed dramatically (Kessler

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et al., 2005a; Kessler et al., 2005b), making it important to examine if and how the prevalence of suicidal behaviors have changed over time. Second, most prior reviews have focused on a specific country (e.g., U.S.), sub-group (e.g., adolescents), or behavior (e.g., suicide attempt). We review data from multiple countries, all age groups, and on different forms of suicidal behavior, providing a comprehensive picture of the epidemiology of suicidal behaviors. Moreover, given recent technological developments in injury surveillance systems (Horan & Mallonee, 2003), as well as the recent completion of several large-scale epidemiological studies examining the cross-national prevalence of suicidal behaviors (Bertolote et al., 2005; Nock et al., 2008a; Platt et al., 1992; Weissman et al., 1999), an updated review of this area is especially warranted at this time.

Terminology and definitions in suicide research

We use the terminology and definitions for suicidal behaviors outlined in recent consensus papers on this topic (O'Carroll et al., 1996; Posner et al., 2007; Silverman et al., 2007a, 2007b). We define *suicide* as the act of intentionally ending one's own life. Nonfatal suicidal thoughts and behaviors (hereafter "suicidal behaviors") are classified more specifically into three categories: *suicide ideation*, which refers to thoughts of engaging in behavior intended to end one's own life; *suicide plan*, which refers to the formulation of a specific method through which one intends to die; and *suicide attempt*, which refers to engagement in potentially self-injurious behavior in which there is at least some intent to die. Most researchers and clinicians distinguish suicidal behaviors from non-suicidal self-injury (NSSI; e.g., self-cutting), which refers to self-injury in which a person has no intent to die and is not the focus of this review (Nock et al., 2006; Nock & Kessler, 2006; Nock & Prinstein, 2005).

We first review data on the current rates and recent trends for suicide and suicidal behaviors in the U.S. and cross-nationally. Next we review data on the onset, course, and risk and protective factors for suicide and suicidal behaviors. Finally, we summarize data from recent suicide prevention efforts and conclude with suggestions for future research.

Method

Main data sources

Suicide

Data on annual suicide mortality in the U.S. are maintained by the National Vital Statistics System of the Centers for Disease Control (CDC) and were retrieved for this review using the Web-based Injury Statistics Query and Reporting System (WISQARS) (CDC, 2008a). In examining recent time trends, we examined rates of suicide in the U.S. from 1990 to 2005, the most recent data currently available. Suicide data for many other countries are maintained by the WHO (WHO, 2007). We included information in this review from a wide range of countries and for those with the highest reported rates of suicide, but we did not include data for every country because of space constraints. Cross-national variability in the most recent year for which suicide data are available precluded an analysis of recent trends at the same level of detail as that for the U.S.

Suicidal behaviors

The CDC also maintains data on the estimated rate of nonfatal self-injury based on a national surveillance system of injuries treated in U.S. hospital emergency departments (National Electronic Injury Surveillance System) (CDC, 2008b). These data were reviewed to estimate the rate of nonfatal self-injury in the U.S. Although these data provide valuable information about the scope of this problem, there are three notable limitations of these data: they lack precision in that they do not distinguish between suicidal and non-suicidal self-injury; they do not provide data on characteristics or risk and protective factors, and they fail to capture self-injury not treated in U.S. hospital emergency departments. In order to address these limitations, data on the prevalence and characteristics of nonfatal suicidal behaviors in the U.S. and other countries also were obtained via a systematic, electronic search of the recent peer-reviewed literature (1997–2007). We searched the U.S. National Library of Medicine's PubMed electronic database using the title and abstract search terms "suicide," "suicidal behavior," or "suicide attempt," and requiring the term "epidemiology" or "prevalence." This search yielded 1052 abstracts, which we reviewed individually and used to inform the review if they reported: the prevalence of suicide (n=28) or suicidal behaviors

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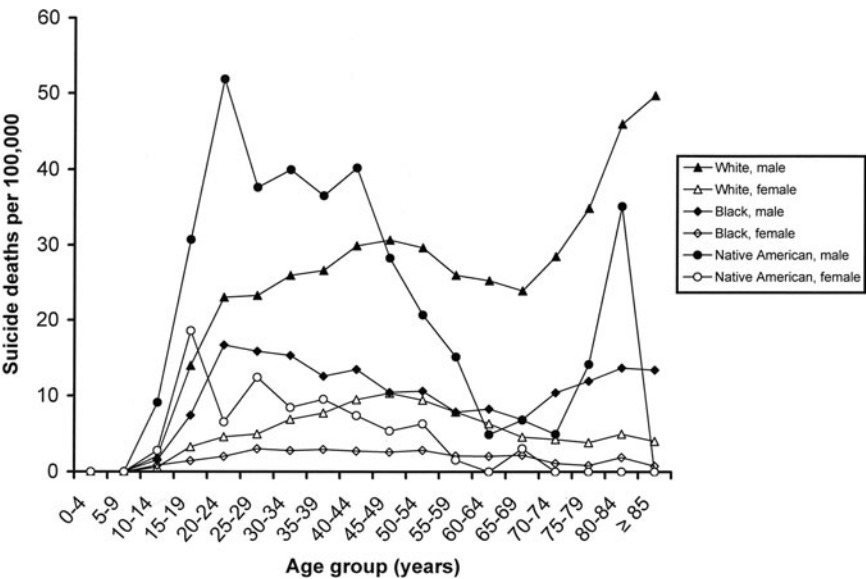


Figure 2.1. U.S. suicide deaths, 2005. Data are from the U.S. Centers for Disease Control Web-based Injury Statistics Query and Reporting System (CDC, 2008a). Data points based on less than 20 deaths per cell may be unreliable. These include: those for ages 0–9 years for all groups, 80–85+ years for black males, 10–14 and 55–85+ years for black females, 10–14 and 45–85+ years for Native American/Alaskan Native males, and all data points except ages 10–14 years for Native American/Alaskan Native females.

($n=65$) within some well-defined population, risk/protective factors or prevention programs ($n=132$), or review of the above ($n=102$). Excluded were studies: with small sample sizes (<100 ; $n=73$), for which the full article was not available in English ($n=108$); of narrowly defined sub-populations (e.g., specific clinical samples) or irrelevant topic (e.g., cellular suicide) ($n=493$), and those that did not provide a specific measure of one of the suicidal behaviors outlined above ($n=51$). When multiple studies were identified reporting on the same data source (e.g., CDC Youth Risk Behavior Survey [YRBS]), only the primary or summary report was used to avoid redundancy.

Results

Suicide in the United States

Current

Suicide occurs among 10.8 per 100,000 persons, is the 11th leading cause of death, and accounts for 1.4% of all U.S. deaths (CDC, 2008a). A more detailed examination of gender, age, and ethnic/racial groups reveals significant sociodemographic variation in the suicide rate. As presented in Figure 2.1, there are no group differences until mid-adolescence (15–19 years), at which time the rate among males increases dramatically relative to

the rate among females. The rise for males is greatest among Native Americans/Alaskan Natives, increasing more than five-fold during adolescence from 9.1/100,000 (10–14 years) to 51.9/100,000 (20–24 years). The rate for Native American/Alaskan Native males declines during middle adulthood before peaking again during older age. Non-Hispanic white males also have a sharp increase during adolescence and young adulthood (from 2.0/100,000 at ages 10–14 years to 23.0/100,000 at ages 20–24 years) and a second one from age 65–69 years (23.9/100,000) to 85+ years (49.7/100,000). The rate for women is lower and virtually non-overlapping with those of men, with the two exceptions being for suicide among Native American/Alaskan Native women during adolescence (10–19 years), and for white women during middle-age (55–59 years). Suicide rates for people of Hispanic and Asian race/ethnicity, not presented in Figure 2.1 due to space constraints, are generally similar to those for black males and females.

Trends

Recent U.S. suicide trends (1990–2005) are displayed in Figure 2.2, with separate lines plotted by gender (male, female) and age (10–24, 25–44, 45–64, 65+ years). Suicide rates stratified by race/ethnicity have not changed over this period and so were not included

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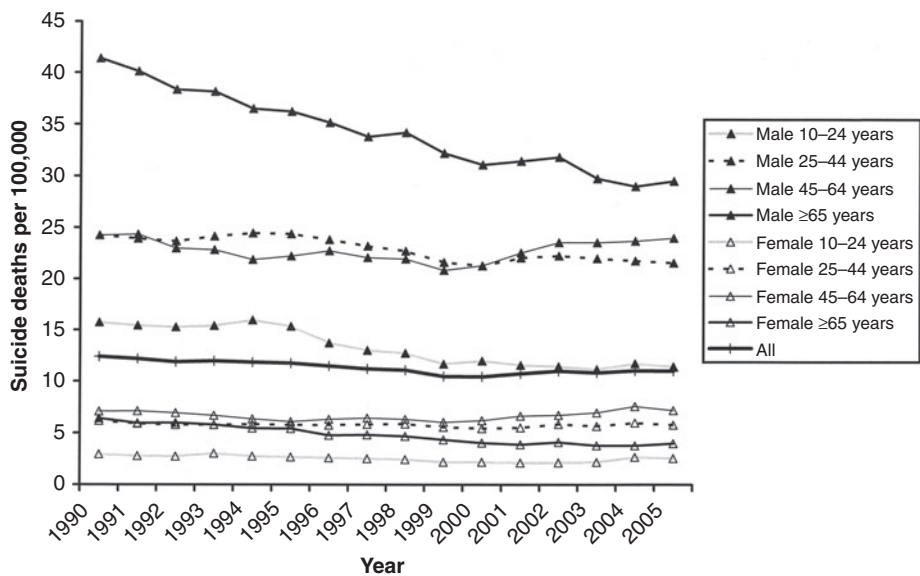


Figure 2.2. U.S. suicide deaths by age and gender, 1990–2005. Data are from the U.S. Centers for Disease Control Web-based Injury Statistics Query and Reporting System (CDC, 2008a).

for ease of presentation. As shown in Figure 2.2, the suicide rate is consistently higher for males than females. Substantive decreases have occurred for elderly males (65+ years), who show a decrease from 41.4 to 29.5/100,000 and for young males (10–24 years), who show a decrease from 15.7 to 11.4/100,000. The overall U.S. suicide rate has decreased from 12.4 to 11.0/100,000 (11.1% decrease) during this time.

Cross-national suicide rates

Current

Data from the WHO indicate that suicide occurs in approximately 16.7 per 100,000 persons per year, is the 14th leading cause of death worldwide, and accounts for 1.5% of all deaths (WHO, 2007). As presented in Figure 2.3, suicide rates vary significantly cross-nationally. In general, rates are highest in Eastern European countries and lowest in Central and South American countries, with the U.S., Western Europe, and Asian countries falling in the middle. Despite the wide variability in rates, there is a consistently higher rate among men than women, with men dying by suicide more than women at a ratio of between 3:1 and 7.5:1. Two notable exceptions are India and China, where there are no clear gender differences. The male-to-female ratio is 1.3:1 in India, 0.9:1 in mainland China, and 2.0:1 in Hong Kong. The reason for the absence of a gender difference in India and

mainland China is not known, but it has been suggested that the lower social status of females in the context of disempowering circumstances and the more lethal methods used, such as self-burning in India (Kumar, 2003) and ingestion of pesticides in China (Lee & Kleinman, 2003), may account for this pattern. Given that India and China alone constitute nearly half of the world's population, this “atypical” ratio may well represent a typical pattern when considered based on the global population.

Trends

Definitive data do not exist on worldwide suicide mortality trends due to cross-national differences in reporting procedures and availability of data. The WHO has maintained cross-national data on suicide mortality since 1950; however, there are inconsistencies in reporting by individual countries, with only 11 countries providing data in 1950, 74 countries in 1985, and 50 in 1998. Moreover, the fact that some governments have treated suicide as a social or political issue rather than a health problem may have diminished the validity of earlier data and resulting estimates. Given these inconsistencies, it is difficult to generate an accurate cross-national estimate of trends. Nevertheless, the data maintained by the WHO suggest that the global rate of suicide has increased from 1950 to 2004, especially for men (Bertolote & Fleischmann, 2002), and data-based projections suggest the number

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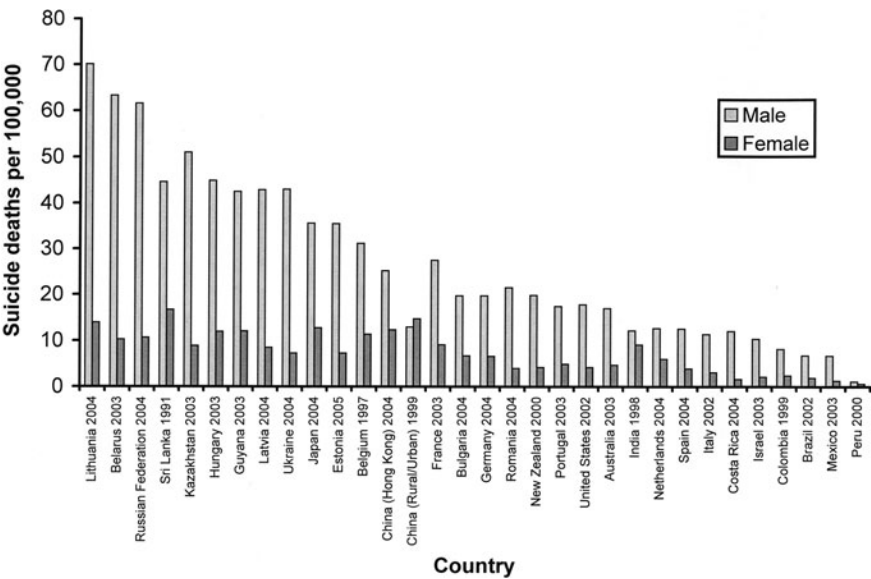


Figure 2.3. Cross-national suicide deaths – most recent year available. Data are from the World Health Organization (WHO, 2007).

of self-inflicted deaths will increase by as much as 50% from 2002 to 2030 (Mathers & Loncar, 2006). Given the inconsistencies in data sources both within and across countries (Bertolote & Fleischmann, 2002; Jenkins, 2002; Pescosolido & Mendelsohn, 1986), though, a definitive picture of the long-term trends in global suicide deaths remains unclear.

Suicidal behaviors in the United States

Current

Data from the CDC (CDC, 2008b) on nonfatal self-injury for 2006 are presented in Figure 2.4. As shown, there is a significant increase in risk of nonfatal self-injury (both suicidal and non-suicidal in nature) during adolescence and young adulthood, which decreases monotonically throughout adulthood. In contrast to suicide mortality, rates of nonfatal self-injury are consistently higher among females. Data from our systematic review suggest that for U.S. adults (18+ years), the lifetime prevalence of suicide ideation is between 5.6% and 14.3% with an interquartile range (IQR) of 7.9%–13.9%, for suicide plans is 3.9%, and for suicide attempts is 1.9%–8.7% (IQR=3.0%–5.1%) (see Table 2.1 for studies). Twelve-month prevalence estimates are in the range of 2.1%–10.0% (IQR=2.4%–6.7%) for suicide ideation, 0.7%–7.0% (IQR=0.7%–5.5%) for suicide plan, and 0.2%–2.0%

(IQR=0.3%–1.3%) for suicide attempt, with higher rates for younger adults and females (see Table 2.1). Some of the variation in rates is likely due to sample selection (e.g., high rate of attempt in the study including only Native Americans) and variability in the items used to assess suicidal behaviors. For instance, questions asking about “thoughts of death” generate higher prevalence estimates for suicide ideation than questions asking about “seriously considering suicide” (Scocco & De Leo, 2002), and responses requiring endorsement of intent to die from self-injury yield lower estimates of suicide attempts than simply asking if one has made a “suicide attempt” (Nock & Kessler, 2006).

Studies on adolescents (12–17 years) suggest that the lifetime prevalence is in the range of 19.8%–24.0% (IQR=19.8%–24.0%) for suicide ideation and 3.1%–8.8% (IQR=3.1%–8.8%) for a suicide attempt (there are no data on lifetime suicide plan). Twelve-month prevalence estimates are in the range of 15.0%–29.0% (IQR=16.9%–24.1%) for suicide ideation, 12.6%–19.0% (IQR=13.8%–18.2%) for plans, and 7.3%–10.6% (IQR=8.0%–8.8%) for suicide attempt (see Table 2.1).

A comparison of the prevalence estimates for suicidal behaviors between adults and adolescents raises the question of how it is possible that adults have a lower lifetime prevalence than that of adolescents. In fact, the lifetime prevalence for each suicidal behavior among adults is lower than the 12-month prevalence among adolescents. One possible explanation is that

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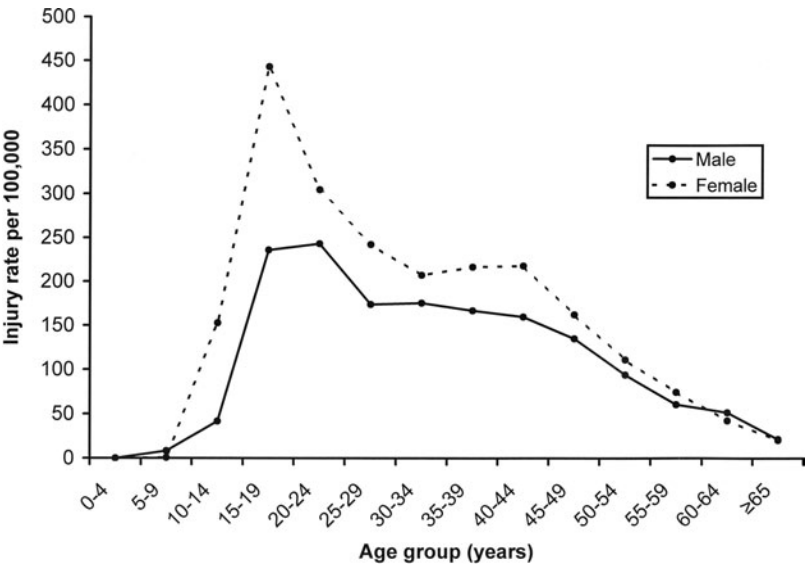


Figure 2.4. U.S. nonfatal self-injury rates – 2006. Data are from the U.S. Centers for Disease Control Web-based Injury Statistics Query and Reporting System (CDC, 2008b). Data points from ages 0–9 years are based on relatively few cases and may be unreliable.

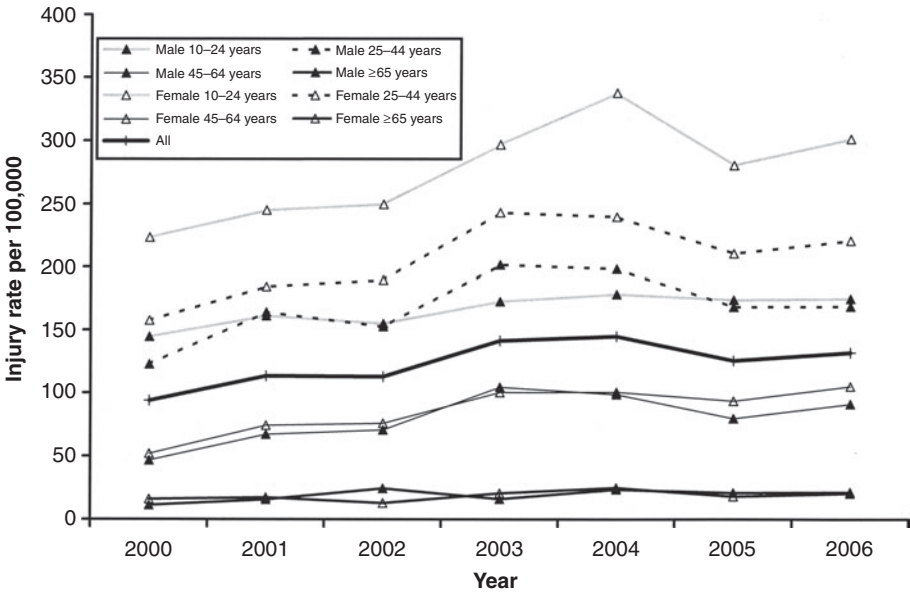


Figure 2.5. U.S. nonfatal self-injury rates by age and gender, 2001–2006. Data are from the U.S. Centers for Disease Control Web-based Injury Statistics Query and Reporting System (CDC, 2008b).

the rates of suicidal behavior in the U.S. are increasing dramatically among adolescents, but this is inconsistent with data on trends in adolescent suicide (reviewed above) and suicidal behaviors (reviewed below). A more likely explanation is that adults under-report lifetime suicidal behaviors. Evidence of such a bias was reported in a study by Goldney et al. (1991) in which 40% of adolescents who initially reported suicide ideation at one time point denied any lifetime

history of suicide ideation when interviewed four years later as young adults.

Trends

Data from the CDC (CDC, 2008b) are available for comparison from 2001 to 2006. As shown in Figure 2.5, the rate of nonfatal self-injury (both suicidal and non-suicidal in nature) shows an increasing trend over this period. Each age and gender group