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Acute and Chronic Risk Preceding Suicidal Crises Among Middle-Aged Men Without Known Mental Health and/or Substance Abuse Problems:

An Exploratory Mixed-Methods Analysis

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Abstract

Background: Suicides among men aged 35–64 years increased by 27% between 1999 and 2013, yet little research exists to examine the nature of the suicide risk within this population. Many men do not seek help if they have mental health problems and suicides may occur in reaction to stressful circumstances.

Aims: We examined the precipitating circumstances of 600 suicides without known mental health or substance abuse (MH/SA) problems and with a recent crisis. Whether these suicides occurred within the context of an acute crisis only or in the context of chronic circumstances was observed.

Method: Using data from the National Violent Death Reporting System and employing mixed-methods analysis, we examined the circumstances and context of a census of middle-aged male suicides ($n = 600$) in seven states between 2005 and 2010.

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Results: Precipitating circumstances among this group involved intimate partner problems (IPP; 58.3%), criminal/legal problems (50.7%), job/financial problems (22.5%), and health problems (13.5%). Men with IPP and criminal/legal issues were more likely than men with health and/ or job/financial issues to experience suicide in the context of an acute crisis only.

Conclusion: Suicides occurring in reaction to an acute crisis only or in the context of acute and chronic circumstances lend themselves to opportunities for intervention. Further implications are discussed.

Keywords

suicide; crisis; middle-aged; mixed methods; qualitative

Suicide prevention efforts typically focus on either youths, for whom suicide was the second leading cause of death in 2013 but for whom rates are relatively low (10.9/100,000), or adults over age 65, for whom suicide was the 17th leading cause of death and rates are relatively high (16.2/100,000; Centers for Disease Control and Prevention [CDC], 2013a) compared to the national average (12.6/100,000). The population that has consistently received the *least* amount of attention is individuals in the “middle years” between the ages of 35 and 64 years (Maris, 1995). In 2013, suicide was ranked as the fifth leading cause of death for men and women (17.8/100,000) within this age range, and this group carried the largest burden of suicide, comprising over half of all suicides (CDC, 2013a). Moreover, suicides increased 28.4% among middle-aged Americans from 1999 to 2010 (CDC, 2013b). While the increase was observed for both females and males (31.5% and 27.3%, respectively), men make up more than 75% of middle-aged suicides (16,769 vs. 5,538; CDC, 2013b) and are therefore the focus of the current study.

In 1995, suicidologist Ron Maris stated: “We have a problem right away. No one really knows very much about midlife suicides” (p. 171). Almost 20 years later, based on rates of suicide and increases in the middle years (CDC, 2013a, 2013b), this observation still appears true. In 2012, the National Action Alliance for Suicide Prevention (NAASP) set the auspicious goal of saving 20,000 lives in 5 years (NAASP, 2012). Meeting this goal necessitates a better understanding of the circumstances preceding middle-aged male suicide so that effective prevention strategies can be developed and implemented. The current exploratory mixed-methods study intended to do just that.

Psychological autopsy studies consistently document the role of mental illness in suicides (Brent, 1995; Cavanagh, Carson, Sharpe, & Lawrie, 2003; Harris & Barraclough, 1997; Isometsa, 2001) with 90% commonly cited as the proportion of suicides involving a mental illness. Recent research suggests that this percentage may actually be much lower given differences in the definition of a diagnosable condition and the possible over-diagnosis of depression among decedents (Braithwaite, 2012; Milner, Svetcic, & De Leo, 2013). Regardless of the proportion, we know that most people with a mental disorder do not attempt (Chen & Dilsaver, 1996) or die by suicide (Druss, Zhao, Von Esenwein, Morrato, & Marcus, 2011; Malzberg, 1932). We also know that the stigma of mental illness and cultural ideals of individualism in the US (Codony et al., 2009) may preclude treatment for many

people with mental illness, particularly males; therefore, suicide prevention efforts must extend beyond the identification and treatment of mental illness.

Contributors to suicide, independent of mental illness, include life events, such as a conflict with a partner, close friend, neighbor, or relative; illness; unemployment; job problems; and financial trouble (Foster, Gillespie, McClelland, & Patterson, 1999; Heikkinen, Aro, & Lonnqvist, 1994). To date, many psychological autopsy studies have focused on youths (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999), older adults (Harwood, Hawton, Hope, & Jacoby, 2006), or suicides across the life course, either matching on, or controlling for, age (Almasi et al., 2009). Only two psychological autopsy studies exist, to our knowledge, that specifically focus on middle-aged adults. The first study focused solely on personality traits, finding that suicide decedents versus controls who died suddenly by other causes scored higher on neuroticism (Draper, Kolves, De Leo, & Snowdon, 2013). The second study examined suicides among men aged 30–49 in Hong Kong and found that having at least one diagnosis, being indebted, being unemployed or underemployed, never married, and living alone were independent risk factors for suicide compared with matched controls (Wong et al., 2008). While these studies provide useful insight into psychological characteristics and circumstances of suicide decedents, they often include relatively small samples thereby limiting their generalizability. The current study sought to explore this gap by examining circumstances of suicide among men in the middle years in a census of male suicides in seven states. We focused particularly on men without a known history of mental health or substance abuse (MH/SA) problems and with stressful circumstances in order to identify the most common or *additional* risk factors for intervention.

Several studies and theories exist that attempt to explain the pathway to suicide in cases for which psychopathology is neither a necessary nor sufficient cause of suicide (Molnar, Berkman, & Buka, 2001; Pompili et al., 2011). For example, Shneidman (1996) recognized psychache (i.e., severe psychological pain) as the “basic ingredient” (p. 7) of suicide. He postulated that the best way to understand suicide is not through the study of mental illness but rather through focusing on human emotions. Schotte and Clum examined cognitive deficits in problem solving and the relationship to hopelessness and suicidal behavior (1982). A stress model of suicidal behavior suggests that stressful life events may trigger suicidal behavior, even in the absence of psychopathology (Paykel, Prusoff, & Myers, 1975). More recently, the stress–diathesis model and the study of epigenetics considers proximal and distal risk factors and their interaction (Turecki, 2014) as a suggested mechanism by which adversity impacts behavior. The stress–diathesis model suggests, for example, that negative antecedent life events such as early child abuse may serve as a diathesis or constitutional vulnerability (van Heeringen, 2012), which when paired with another stressor, such as intimate partner problems or financial problems, may increase the risk for suicide. Suicidal behavior may occur early on in the life course or may set off what Maris dubs the “suicidal career” (1981) with long-standing ideation and/or attempts, or may accumulate to produce a “last straw” effect (Pompili et al., 2011). Clinically, this may manifest with some individuals being more vulnerable to the effects of *acute* triggers (e.g., rejection), while others endure *chronic* risk accumulation alone (described by Post as *kindling* [1992]), and still others endure chronic risk accumulation and then attempt suicide after a final *acute*,

triggering event (van Heeringen, 2012). It is on this chronic accumulation of risk and acute (triggering) event relationship that we focus.

The objective of the current study is to first explore contributing circumstances of middle-aged male suicides where a crisis was noted and then to characterize whether the suicide appeared as a reaction to an acute triggering event or whether the suicide was the result of a chain of accumulated or chronic stress.

Method

To better understand the processes and circumstances precipitating middle-aged male suicide, the current study utilizes an exploratory mixed-methods approach, stemming from qualitative theory. Qualitative approaches provide researchers with the tools to operationalize and establish frameworks through inductive, open-ended, exploratory examination of qualitative data (Creswell, 2007; Sofaer, 2002). To examine the available qualitative data of middle-aged suicides presented in this study, grounded theory methodological techniques were used. Grounded theory encompasses a process of inductive data collection and analysis by examining themes and relationships present in the data with the idea that theories and hypotheses emerge throughout the data-driven analysis process (Creswell, 2007; Strauss & Corbin, 1994). In addition to utilizing this qualitative approach to identify the various precipitators of and circumstances surrounding these suicides, we further quantified the precipitating circumstances that emerged and analyzed the results using quantitative methods to better isolate the most common themes present in the data and, particularly, those precipitators that were common among different groups of men.

This study is exploratory in nature and the first in a series of studies our team designed to characterize suicide among middle-aged adults. In addition to our primary study objective to identify and characterize the circumstances in which suicide among middle-aged men occurs, we had two *methodological* objectives of this initial work: to develop a qualitative coding schema by which to identify and classify circumstances and themes present in the death scene narratives (described later) and then to develop and hone a mixed-methods analysis plan. Subsequent work will use this structure from which to build upon and examine other populations (e.g., middle-aged women) and circumstances.

Data Source

The National Violent Death Reporting System (NVDRS) is a large-scale surveillance system that captures details on a variety of violent deaths including suicides. Specifically, it collects information on decedent characteristics, the means involved, and the precipitating circumstances of death. Data sources for the NVDRS include law enforcement and coroner/medical examiner (CME) reports, toxicology reports, and death certificates. All sources are linked by incident. States manage data collection through state health departments or subcontracted entities, such as medical examiner offices. The process of investigating and identifying precipitators of death used by these investigators typically consists of open-ended (i.e., qualitative) interviews with next of kin about what were believed to be the circumstances that contributed to death. The investigators document the circumstances that

informants believed resulted in, or contributed to, suicide. The data from law enforcement officials and CMEs are gathered and coded by trained NVDRS abstractors. The NVDRS has been described in detail elsewhere (Paulozzi, Mercy, Frazier, Jr., Annest, & CDC, 2004).

Sample Selection

Our sample was selected from a census of suicides in seven geographically dispersed NVDRS states ($n = 11,859$) from the west, south, southeast, mid-Atlantic, and northeastern United States (Colorado, New Mexico, Kentucky, Georgia, Maryland, New Jersey, and Massachusetts). Cases were excluded if they had an NVDRS-defined mental health, alcohol, or other substance problem ($n = 7,335$, 61.9%; CDC, 2010) and/or if no known circumstances about the suicide existed ($n = 1,820$, 15.3%). Additionally, given our focus on individuals without MH/SA problems and given that research indicates that individuals who attempt suicide multiple times are more likely than single attempters to have a mental health disorder (Forman, Berk, Henriques, Brown, & Beck, 2004), we excluded decedents with a history of suicide attempts who were not already excluded ($n = 183$, 1.5%). Finally, in order to elucidate the context in which the crisis occurred, we excluded individuals who had not experienced a recent crisis as defined by NVDRS ($n = 1,896$, 16%). Upon qualitative review, 25 (0.2%) cases were determined to be miscoded (i.e., they had *not* experienced a recent crisis or they appeared to have an MH/SA problem) leaving a total analytic sample of 600 cases (5% of all cases and 23.8% of all cases without MH/SA problems). Given the richness and depth of the narrative data, the sample size was deemed sufficient for identifying the major circumstances that contributed to these suicides (Kendall et al., 2009; Owens et al., 2011). In fact, upon review of an initial 60 cases, we reached saturation (i.e., the point at which no new information added to the development and understanding of the categories and themes we had identified for coding purposes).

Definitions

As stated, cases were selected into the study if decedents were male, between the ages of 35 and 64, did not have a known mental health or substance abuse problem, and had experienced a recent crisis. NVDRS abstractors coded relevant circumstances as recent crises per the established NVDRS coding guidelines stating that the “victim experienced a crisis within two weeks of the incident, or a crisis was imminent within two weeks of the incident” (CDC, 2010, p. 119). If a circumstance was described as occurring “recently” by law enforcement, CMEs, or data abstractors, we also defined and coded it as a recent crisis. We defined all precipitating circumstances as *acute*, *chronic*, or *acute-on-chronic* (Figure 1). The term *acute* is used to characterize any recent crisis (i.e., a precipitator or circumstance categorized by NVDRS data abstractors as “recent crisis” or otherwise described in narrative data as having occurred “recently”). Chronic circumstances included any circumstance that occurred over an extended period or outside the 2-week window characterizing acute circumstances (e.g., unemployment lasting 2 years). Acute-on-chronic circumstances involved a chronic situation as stated previously, punctuated or exacerbated by an acute crisis; for example, a decedent with a chronic health condition, such as cancer, received a terminal prognosis the day prior to his suicide. Because we selected cases based on crisis

status, all of the decedents included in this study experienced at least one acute or acute-on-chronic circumstance.

Data Analysis

Data were analyzed in three phases. In Phase 1, study team members developed a coding guide consistent with grounded theory techniques (Glaser, 1998; Strauss & Corbin, 1998). This involved a combination of narrative review, open coding (i.e., creating main categories of suicide circumstances), axial coding (i.e., identifying patterns of underlying causes, contexts, and consequences under each category), and memo creation (i.e., notes outlining evolving theories and hypotheses that emerge from the data). This process led to a coding guide that included descriptive information about decedents, 11 categories of contributing circumstances (nonclinical mood issues [e.g., angry], adverse childhood experiences, family history of mental health problems/ suicide, other problems of/with family members, intimate partner problems [IPP], other relationship problems, physical health problems, criminal/legal problems, job/financial problems, suicidal ideation, and recreational drug use); evidence of premeditation (*yes/no*), and use of suicide prevention/intervention strategies and opportunities (*yes/no*). During development of the coding guide, a set of narratives were coded until saturation was achieved to ensure that our

coding structure would fully capture the circumstances contributing to suicides in our sample (Conrad, 1978; Corbin & Strauss, 1990; Strauss & Corbin, 1990, 1994; Vaismoradi, Turunen, & Bondas, 2013).

The current study focused specifically on elucidating and detailing the descriptive information and circumstances that contributed to suicide cases among middle-aged men in an effort to characterize those who die by suicide and the types of crises that trigger suicide. We further divided contributing circumstance categories into 60 subcategories (e.g., cancer, arguments with partner, pending arrest) to detail the various types of problem experienced. Finally, we coded the circumstance context (i.e., acute, chronic, acute-on-chronic) for applicable subcategories (e.g., recent cancer diagnosis was coded as an acute circumstance; ongoing arguments were coded as chronic; see example, Table 1). Upon finalizing the coding guide, we assessed intercoder agreement. Each study team member coded 30 cases. Discrepancies were discussed and settled in a roundtable setting. We reached an intercoder agreement of 80%.

In Phase 2, we quantified the frequencies of each category, subcategory, and context code. We then conducted thorough thematic analyses of the categories and subcategories with the highest frequencies to identify common patterns (see example, Table 2). In Phase 3, we conducted quantitative analyses. This included analyzing descriptive statistics for the entire sample (Table 3) and for each of the main categories identified (Table 4). We conducted chi-square and *t* tests to examine differences between groups. We used SAS (version 9.3) for all quantitative analyses. Significance levels were set at $p < .05$ for all tests.

Results

Of the 600 men between the ages of 35 and 64 included in the sample, 414 (69%) were non-Hispanic White, 100 (16.7%) were non-Hispanic Black, 49 (8.2%) were Hispanic, 14 (2.3%) were non-Hispanic Asian, four (0.7%) were American Indian/Alaska Native, and 19 (3.2%) had unknown/other racial/ethnic identities (see Table 3). The average age at death was 47.2 years. Nearly two thirds of all suicides occurred via firearm, 20% from hanging/strangulation, and roughly 7% each from poisoning and other circumstances.

Overall, 1,453 known precipitating circumstances, including 966 acute, 331 chronic, and 156 acute-on-chronic circumstances, were identified as problems that contributed to suicide among the 600 cases. More than 50% of cases involved acute conditions only ($n = 307$). The remaining cases involved the presence of other circumstances that were coded as chronic or acute-on-chronic. On average, narratives noted that decedents experienced 2.2 of the 11 categories identified as contributing circumstances in the coding guide. Four categories commonly noted included IPP, criminal/legal problems, physical health problems, and job/financial problems. Finally, our qualitative analysis uncovered clear themes regarding disclosure of suicidal intent or ideation (i.e., evidence of premeditation), with individuals who experienced IPP, criminal/legal problems, physical health problems, and job/financial problems premeditating about suicide at different rates. These results are described in detail here.

Intimate Partner Problems

Almost 60% of cases included IPP ($n = 350$), making them the most frequent type of precipitating circumstance experienced (see Table 4, column A). Of this group, almost two thirds of decedents were non-Hispanic White. Men with IPP differed marginally in terms of race/ethnicity from those without IPP ($p < .10$). The average age of decedents in this category was 45.7 years; younger than those who did not experience IPP (average age = 49.3 years; $p < .001$). Men with IPP experienced between one and eight of the 11 categories of circumstances, with an average of 2.5 categories noted per person. The number of total circumstances noted among men with IPP was 940, including 625 acute circumstances (average = 1.8/person), 224 chronic circumstances (average = <1/person), and 91 acute-on-chronic circumstances (average = <1/person). In all, 51% of narratives with IPP occurred within the context of an acute circumstance only, similar to those without IPP ($p > .05$).

Qualitatively, of the 350 cases involving IPP, 147 (42%) narratives noted arguing between intimate partners. The majority of these arguments ($n = 131$; 89%) occurred immediately prior to the suicide and were coded as acute. Divorce and break-ups were noted in 117 (33.4%) of the 350 IPP cases, again with many cited as having occurred recently, and therefore noted as acute. Seventy-two (20.6%) IPP cases involved intimate partner violence (IPV) perpetration, with more than half of these ($n = 37$) identified as having occurred recently, and therefore categorized as acute. Fifty-two (14.9%) cases involved separation (i.e., the partner leaves the household or otherwise physically separates from the victim). Most of these cases ($n = 37$; 71.2%) occurred proximal to suicide and were therefore coded as acute. For example, the partner “left” or had “moved... 2 weeks... [prior] to get away

from” decedent. Thirty-seven (10.6%) narratives noted infidelity or accusations of infidelity. Other IPP, not identified above, occurred in 51 (14.6%) cases and were primarily chronic in nature. Many narratives indicated that more than one IPP occurred simultaneously; for example, the decedent “and his wife were going through a divorce... [and] authorities had been dispatched to the location prior on domestic violence calls.” Additionally, many cases involved continual problems within the intimate partner relationship (e.g., the suicide victim “and his wife [were] going through the process of a divorce, but [had] not formally filed the paperwork. They were fighting because she would not have sex with him”). This narrative demonstrates the co-occurring nature of different forms of IPP and the context of these subcategories (i.e., acute, chronic, or acute-on-chronic risk).

Finally, 28.6% of men who experienced IPP premeditated suicide, either expressing suicidal ideation prior to death, making a disclosure to a family member, friend, or other person, or writing about their suicidal intent before death. A common theme that emerged regarding disclosure among this group was that men disclosed intent immediately prior to the suicide (e.g., “The couple argued, and the victim made several suicidal comments about hanging himself in the garage”).

Criminal/Legal Issues

Criminal and/or legal issues preceded half of all suicides examined in this analysis, 304 (50.7%; see Table 4, column B). People experiencing criminal/legal issues were more often non-White compared with people without criminal/legal issues ($p < .001$). They also tended to be younger (average = 46.3 years) than people without criminal legal issues (average = 48.1 years; $p < .001$). People in this group experienced between one and nine categories of circumstances (average = 2.3/person). Narratives in this group noted 781 circumstances: 563 acute circumstances (average = 1.9/person), 145 chronic circumstances (average = <1/person), and 73 acute-on-chronic circumstances (average = <1/person). Fifty-four percent ($n = 165$) of narratives with criminal/legal problems occurred within the context of an acute issue only. This finding was similar to the distribution among those without a criminal/legal issue ($p > .05$).

Of the 304 decedents categorized as experiencing criminal and/or legal issues, 40.8% committed 139 acts of homicide and 37 acts of attempted homicide prior to suicide. Intimate partners or former intimate partners ($n = 99$) were targeted in 71.2% of homicides and in 48.6% of attempted homicides ($n = 18$). Other family members were targeted in 25 (18%) homicides and five (13.5%) attempted homicides. Seventy-percent of intimate partner homicides also involved another IPP. For example, 25.3% ($n = 25$) occurred within the context of a recent (acute) argument: “Victim and [wife] had been having marital problems and were arguing the day of the incident. They decided to separate. Victim left and then came back and shot [wife], then shot himself in the chest.” Ten percent of intimate partner homicides occurred within the context of a recent (acute) divorce or break-up. For example: “The couple[s] were separated and in the process of divorcing... The couple had no attorneys and was trying to resolve the property settlement on their own; they were having difficulties.” A further 14.1% occurred in the context of chronic issues associated with divorce.

Among all criminal-legal cases, 88 (28.9%) occurred in the context of a recent (acute) arrest or warrant for arrest; for example, the decedent “was facing jail time for a domestic violence charge that his son had testified against him.” Of these cases, 37 (42%) victims died within moments of contact with law enforcement (e.g., upon routine traffic stops or upon being served a warrant). Fifty-eight cases (19.1%) occurred in the context of an acute or acute-on-chronic incident involving a restraining order being served or violated; for example: “The victims was described as being very dominating and abusive toward the [wife]. [She] was in the process of obtaining a restraining order against the victim and had moved to a different town 2 weeks ago to get away from the victim.”

Twenty men (6.6% of subjects with criminal/legal problems) died while in custody, with most of these cases occurring via hanging/strangulation in their jail cell or holding area. Another nine men had just been released from jail/prison, five had a history of incarceration, and 12 were either going to jail or fearful of pending incarceration. Crimes that preceded suicide involved recently discovered sexual misconduct ($n = 41$), including child sexual molestation ($n = 27$), possession of child pornography ($n = 8$), and rape ($n = 6$); alcohol (driving under the influence) or drug possession or trafficking ($n = 22$; 18 acute); and other felonies such as fraud, robbery, kidnapping, hit and run, and burglary.

About 20% of men who experienced criminal/legal problems exhibited apparent signs of premeditation. Men in this category often indicated suicidal intent or ideation through disclosures made immediately before their death and often as a result of the decedent learning of criminal or legal allegations against him. For example, “An emergency call was placed from victim’s daughter reporting that she was on the phone with victim and that he stated that he was going to commit suicide. Domestic violence papers were found at the residence inside a truck that was owned by victim and had a severance date of the day prior to this event.”

Physical Health Issues

Eighty-one narratives (13.5%) included reference to physical health problems (see Table 4, column C). Suicides among people with health issues did not differ in race/ethnicity from suicides without health issues; however, they tended to be older (average = 52.7 years) than their counterparts without health issues (average = 46.3 years). Cases with health conditions noted between one and eight categories of circumstances present, with an average of 2.7 per person. Narratives noted 228 circumstances and included 104 acute circumstances (average = 1.3/person), 85 chronic issues (average = 1/person) and 39 acute-on-chronic problems (average = <1/person). A little more than a quarter of these problems occurred within the context of an acute issue only. People with health issues were more likely to have acute and chronic issues ($p < .001$).

Among people with health issues noted, 27 (33.3%) experienced multiple health problems. For example, one case involved a man who had “severe health problems and was told that he only had six months to live due to problems with his heart, liver and kidneys.” Health problems included four categories, primarily: cancer, chronic disease, physical pain, and “other” physical issues. Cancer was present in 20 (24.7%) of the 81 physical health-related

cases; 12 narratives described acute, three described chronic, and five described acute-on-chronic cancer-related complications or diagnoses. Thirty-two of 81 men (39.5%) experienced chronic disease (e.g., heart disease). Of these, 27 had chronic issues associated with their disease, and five experienced acute or acute-on-chronic events related to their disease(s). For example, one victim had been “diagnosed with bone cancer at the start of the year... [He] had just had a doctor’s appointment where he found out that the cancer had come back.” In addition, physical pain was indicated as a precipitating circumstance for 22 (27.2%) men, with nine of these men (45.0%) experiencing acute-on-chronic pain (e.g., pain over a long period, punctuated by an acute episode of pain that served as a recent crisis, or possible trigger for suicide). Finally, 42 men experienced other physical health circumstances, such as surgeries, asthma, stomach ailments, hepatitis C, among others, in varying contexts. For instance, “Victim was diagnosed with cancer and hepatitis C [chronic] and was recently given by doctors six months to live [acute-on-chronic]... Recently, the victim had coughed so hard that he broke a few ribs [acute]... The victim did not have health insurance [chronic] and often drank alcohol to ease his pain [chronic].”

Nearly one quarter (23.5%) of men whose suicides were precipitated by physical health problems had previously disclosed suicide intent or experienced suicidal ideation. These men often had ongoing health problems, and often indicated suicidal intent in relation to their failing health: “Victim left a suicide note in the vehicle; it said that the victim did not want to live with the pain anymore, and he had taken his own life.”

Job/Financial Problems

Job/financial problems occurred in 135 (22.5%) cases (see Table 4, column D). Non-Hispanic Whites comprised more than three quarters of this group. This was similar to the percentage without job/financial issues ($p > .05$); however, this group tended to be older (average = 48.6 years) than the group of suicides without job/financial problems (average = 46.8 years). Men with job/financial problems experienced between one and eight of the 11 precipitating circumstance categories, with an average of 2.8 per person. Overall, this group experienced 421 preceding circumstances as noted in the narratives. This included 233 acute circumstances (average = 1.7/person), 134 chronic circumstances (average = 1/person) and 54 acute-on-chronic circumstances (average < 1/person). About 41% of narratives with job/financial problems occurred within the context of an acute circumstance only. This proportion was significantly less than the proportion of people without job/financial problems, $p < .01$.

Seventy-seven men (57%) experienced job-related problems specifically. Among them, a majority ($n = 46$; 59.7%) noted unemployment issues, for example, one decedent “had been unemployed for quite some time... [and] had been unsuccessful in repeated attempts to get work.” In addition, decedents also experienced “other” job-related issues ($n = 26$; 33.8%), such as job termination, uncertainty of future job status, and demotion. Among cases indicating financial concerns specifically ($n = 92$; 68.1%), incidents included home foreclosure or loss of one’s home ($n = 34$; 37.0%), debt issues ($n = 8$; 8.7%), and unspecified financial problems ($n = 54$; 58.7%). Thirty-four (25.2%) of job/financial concerns included both job and financial problems. For example, one decedent wrote in a suicide note, which

was paraphrased by the death scene investigator, that he was “struggling in his business and [had undescribed] problems with his business partner... [and] financial problems due to situation with [his] business.” Over one fifth (22.2%) of individuals in the job/financial problem category expressed premeditation with suicide notes often referencing mounting debt.

After examining these results, we conducted a post hoc hypothesis test to determine whether decedents with IPP or criminal/legal issues ($n = 370$) would be more likely than those with health or job/financial problems ($n = 198$) to experience acute circumstances only. We found that 56% of the former group experienced acute circumstances only compared with 36.4% of the latter group, thereby supporting our hypothesis, $\chi^2 = 19.8(1)$, $p < .001$. Finally, as noted in Table 4, we found that men who had experienced IPP were more likely to have premeditated about their suicide (i.e., had suicidal ideation, disclosed verbally or in writing) than those without IPP problems, while those who experienced criminal/legal problems were less likely to premeditate compared with their counterparts without criminal/legal problems. There were no significant differences in premeditation between men with and without health or job/financial problems.

Discussion

This study sought to examine the nature and context of the crises and other circumstances preceding suicide among a group of middle-aged men without MH/SA problems and with recent crises. As a result of this exploratory mixed-methods analysis, four primary categories of suicide precipitators emerged: IPP (58.3%), criminal/legal issues (50.7%), physical health issues (13.5%), and job/financial problems (22.5%). Our analysis revealed that IPP and criminal/legal issues occurred about equally in the context of acute and acute-on-chronic risk, while health stressors and job/financial problems occurred more frequently in the context of acute-on-chronic risk. When we compared the former two groups with the latter two groups, we found that crises among men with IPP and criminal/legal issues more frequently occurred in the context of acute risk only.

Our study both concurs and diverges from psychological autopsy findings. For instance, a Finnish study by Heikkinen, Isometsa, Aro, Sarna, and Lonnqvist (1995) examined life events in the 3 months prior to suicide ($n = 1,022$) and found that separation was the most prevalent circumstance among the 40–49-year-old age group, occurring in 21.8% of cases. IPP occurred much more frequently in our sample of men, 58.3%. This likely resulted from our extensive definition of IPP, which ranged from arguments and divorce/break-ups to IPV perpetration.

Heikkinen and colleagues (1995) further noted that physical health issues contributed to a range of deaths – from 11% in the 40–49-year-old group to 48.1% in the 60–69-year-old group. This finding aligns with our results and indicates that older versus younger individuals are more likely to suffer a physical health problem. With respect to preceding job/financial and criminal/legal problems, our study found similar rates to those reported by Heikkinen et al. in two separate studies (Heikkinen et al., 1994; Heikkinen et al., 1995).

Interestingly, a study of adolescent suicides indicated that 25% of cases *without* psychiatric problems, compared with 4% with such problems, had been involved with the legal system prior to suicide (Marttunen et al., 1998). This suggests that criminal/legal problems may be more prevalent among suicide decedents without known mental health disorders. This aligns with our sample that included a large percentage of criminal/legal issues; however, in an effort to further elucidate the antecedents of suicide among middle-aged Americans, our future research will focus on examining whether middle-aged men with mental health, substance abuse problems, and a history of suicide attempts experience similar crises and circumstances within the same context as men without such problems.

Strengths

The current work has several notable strengths. Unlike psychological autopsy studies that primarily focus in depth on examining the presence or absence of psychiatric disorders (Barracough, Bunch, Nelson, & Sainsbury, 1974; Cavanagh et al., 2003; Conwell et al., 1996; Isometsa, 2001), the current study examined suicides among individuals *without* an identified mental health disorder. Additionally, most psychological autopsy studies examine older adults or youth (Dervic, Brent, & Oquendo, 2008; Duberstein, Conwell, Conner, Eberly, & Caine, 2004; Pompili et al., 2008); few have studied middle-aged adults – a growing segment of the suicide population – either exclusively or in an in-depth qualitative fashion. In addition, NVDRS provided the opportunity to carry out a mixed-methods analysis and to do so using a large sample consisting of an entire eligible census of suicides in multiple states. The large number of cases and the method by which the data were coded and analyzed in this study are virtually unmatched and will undoubtedly be considered a major contribution to the field of qualitative research and suicide prevention. This large sample enabled us to uncover a breadth of categories and themes all in a lower-cost and more efficient manner compared with traditional psychological autopsy studies (Isometsa, 2001). From this process we began to identify areas of potential intervention and prevention grounded in the data (i.e., narratives). For future analyses, we plan to address the broader generalizability of our findings by examining more states implementing NVDRS.

Limitations

The study results should be considered in light of several limitations. First, the quality of NVDRS data varies by state, with some narratives containing relatively extensive detail and others containing notably less information. Second, NVDRS narratives consist of details from key informants who may be unaware of all important contributing circumstances. For example, key informants may be unaware of prior suicide attempts or decedent mental health disorders, two of our primary exclusion criteria. Additionally, information provided may be biased given the often emotional context of the suicide and its investigation. However, these limitations are a general limitation of the postmortem interview methodology (Cavanagh et al., 2003) and not specific to this study alone. Third, our results are not generalizable to the population of all middle-aged male suicides without known MH/SA problems and with a recent crisis, as we examined cases from seven states only. However, NVDRS (at the time of this analysis) included only 15 states so this would have been a limitation even had we included all states. While we included cases from most

regions of the US, the northwest and southwest regions were not included, which may have resulted in identification of different circumstances related to suicides. Fourth, while we selected cases based on no indication of an NVDRS-defined MH/SA problem, we cannot be certain that the decedents did not in fact have a disorder such as a personality disorder, more likely to get overlooked. We do know, however, that an undiagnosed, untreated, or otherwise hidden diagnosis may be common among males (Codony et al., 2009). Finally, while some may consider our sample size small, these 600 cases ($n = 600/2,521$) represent nearly one quarter (23.8%) of all non-MH/ SA-related cases among males in the age group in the seven states.

Implications and Future Research

The results of this study have implications for research, practice, and policy. From our analysis, it appears that IPP, criminal/legal issues, health, and job/financial concerns play an important role in suicide among men without known MH/SA problems. Understanding the context of these issues in men's lives may be useful when developing suicide prevention programs or when assessing risk. For example, identification of chronic risk factors, such as ongoing health problems, in the context of acute or recent financial issues, may alert professionals (e.g., legal, medical, work place) to better support individuals who may be vulnerable to the effect of accumulating stress. Assessing interpersonal conflicts, other difficulties at home or work, social support, and coping strategies in such situations may help identify at-risk men and facilitate referrals to appropriate services.

Public health professionals, social service professionals, and researchers may benefit from considering not only prevention for middle-aged men but from considering upstream prevention with boys and young men. For example, implementation and evaluation over time of dating violence prevention curricula in middle and high schools and greater emphasis on coping, problem solving, help seeking, and connectedness to positive peers and trusted adults early on may all work to stem later crises. Additionally, researching the motivations, or lack thereof, for help seeking at different ages, and developing and testing effective interventions that increase help seeking, linkage to care, and service utilization may help support males of all ages.

Implications also exist for the general public by way of health literacy for suicide prevention, that is, knowing the risk and warning signs for suicide and taking appropriate action (Owens et al., 2011). For example, results indicated that nearly one in five decedents exhibited apparent premeditation regarding their suicide. In some cases, this was done very directly, "Now I'm going to kill myself." In other cases it was more indirect, "Everybody would be much better off if I weren't around." Strategies aimed at increasing awareness about the seriousness of this kind of disclosure and ways to connect at-risk individuals with prevention resources may save lives. Similarly, promoting norms that sanction suicide-laden terminology in everyday vernacular, for example, "I am so frustrated, I could shoot myself," may prevent people from disregarding or mistaking serious intention or cries for help. Additionally, normalizing conversation related to emotions and encouraging openness with men and young boys about their stressors may support connectedness and social norms change, so that males of all ages feel more comfortable receiving support and seeking help

when needed. Finally, results may inform postvention interventions and prevention for survivors who may feel guilt or shame or who may suffer in other ways not typically acknowledged (e.g., financially).

Our future research will seek to examine whether middle-aged men with MH/SA problems and/or history of suicide attempts experience similar precipitators of suicide as those described herein. We also plan to extend our coding structure to examine antecedents of suicide among a sample of middle-aged women. To further strengthen our study and to make our quantitative findings more generalizable, we will include data from additional states/regions in the NVRDS dataset.

Conclusion

In 2012, the NAASP stated an auspicious goal of saving 20,000 lives from suicide in the next 5 years (NAASP, 2012). Effective prevention strategies for middle-aged men, who comprise the bulk of all suicides, would help reach this goal. Through exploratory and mixed-method approaches, a better understanding of the precipitating circumstances and context of suicide among middle-aged men can inform an effective response to prevent these unnecessary deaths.

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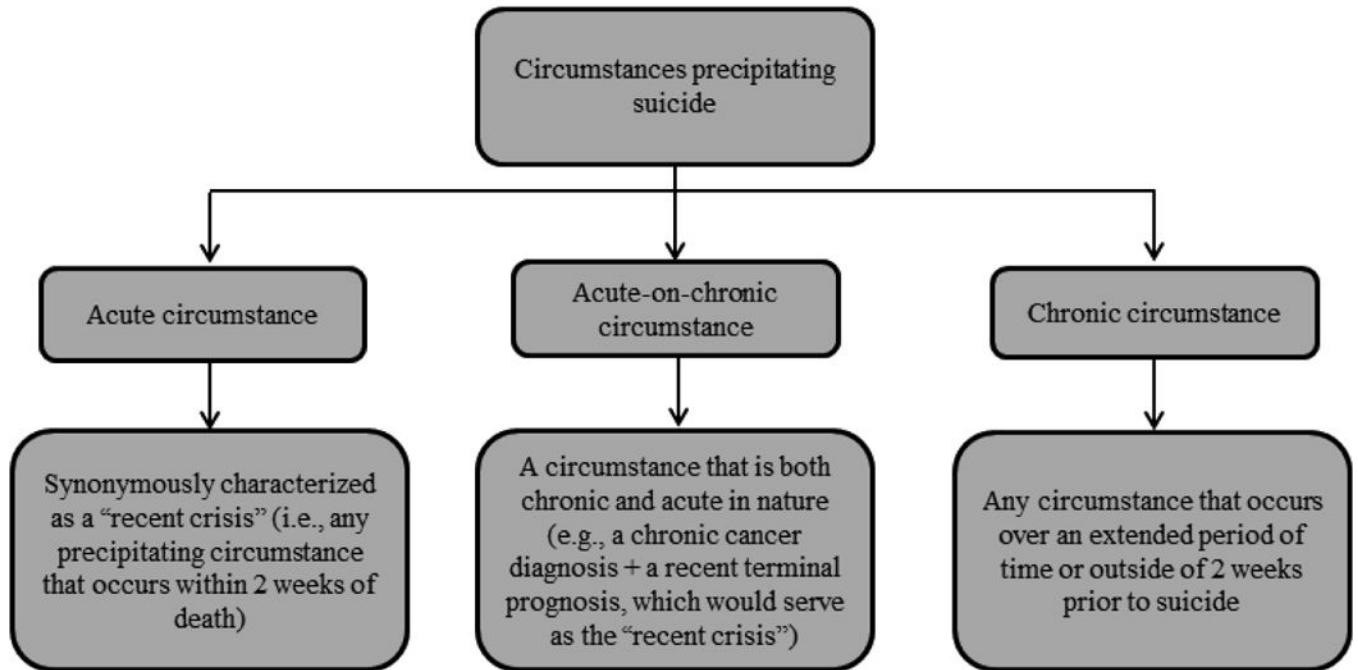


Figure 1.
Classification of the context of circumstances precipitating suicide.

Table 1.

Sample narratives and codes applied

Narrative	Codes applied
<p>“42 [year old black male] died of self-inflicted [gunshot wound] to the head with a 12-gauge shotgun in a vehicle at a junkyard near residence. [Victim] had physical altercation with wife¹ and wife called authorities. [Victim] was on probation² and feared he would go immediately to jail³, so shot self in head. [Victim] disclosed intent⁴.”</p>	<p>¹Intimate partner violence perpetration – acute ²Arrest/pending arrest/avoidance of jail or prison – chronic ³Unspecified legal/criminal problems – acute ⁴Disclosed suicidal intent to another person</p>
<p>“[Victim 1] (59, Hispanic, female) was found unresponsive at her residence with [Suspect/Victim 2]¹ (Male), [Victim 1]’s husband², by their son when he could not get in touch with them over the telephone. [Victim 1] was shot twice in the head by [Suspect/Victim 2] while she was sleeping. [Victim 1] had been severely upset and depressed over the recent death of son³. After killing [Victim 1], [Suspect/Victim 2] then shot himself, he left a note⁴ at the scene and apparently had killed [Victim 1] because he could not deal with her continuous crying and depression⁵. Currently no other information is available.”</p>	<p>¹Homicide-suicide ²Homicide victim is suicide decedent’s spouse/partner ³Death of family member or friend – acute ⁴Left a note ⁵Other intimate partner problem – chronic</p>

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Table 2.

Main categories of contributing circumstances among 600 male suicides with sample codes/subcodes and risk periods noted

Main contributing circumstances (categories)	Specific types of circumstances (subcategories)	Quote examples (including risk period/context)
Intimate partner problems (IPP) <i>n</i> = 350 (58.3%)	<ul style="list-style-type: none"> • Argument/fighting (verbal arguing only) • Abandonment or separation • Divorce or break-up • Infidelity • Intimate partner violence victimization • Intimate partner violence perpetration • Other intimate partner problems 	“Three days ago [acute] the victim went to the town where she worked; they saw each other but the ex-girlfriend would not talk to the victim because their supervisors had told them to stay away from each other. The victim had been working as a mechanic in this town but he was recently transferred to a different location because of the problems that the couple was having [acute-on-chronic]. When the victim was leaving the town where the ex-girlfriend worked, he was stopped for speeding by a different officer and received a ticket [acute].”
Criminal/legal issues <i>n</i> = 304 (50.7%)	<ul style="list-style-type: none"> • Sexual misconduct or allegations of sexual misconduct • Drug/alcohol-related offense • Arrest or pending arrest or avoidance of jail/prison • Incarceration (or release from incarceration) • Other unspecified legal or criminal problems or accusations 	“The victim had been arrested on felony drug charges and was facing 16 years of prison time. He had failed to appear for the last court hearing and there was a warrant out for his arrest [acute].”
Physical health issues <i>n</i> = 81 (13.5%)	<ul style="list-style-type: none"> • Cancer • Chronic disease • Physical pain • Other physical issues 	“[The] victim was fired from job approximately two weeks prior to the incident [acute] and was stressed out about money and wondering how V was going to take care of family. Victim was also having stomach problems and was scheduled to see an oncologist and is the reason for victim losing job [acute-on-chronic].”
Job/financial problems <i>n</i> = 135 (22.5%)	<ul style="list-style-type: none"> • Problems with coworkers • Unemployment problems • Other job-related difficulties • Home foreclosure/lost home • Debt problems • Insurance/disability/benefits problem • Other financial problems not otherwise specified 	“Notes present citing homelessness, joblessness [chronic], argument with father [acute], and previous jail time [chronic].” “Victim was being served notice of foreclosure and eviction [acute]. Victim complained of being nervous and suffering from anxiety attack. Within the past year, victim’s wife had left him and had lost his job [chronic].”

Table 3.Sample descriptive information ($n = 600$)

	<i>n</i>	%
Race/ethnicity		
Non-Hispanic White	414	69.0
Non-Hispanic Black	100	16.7
Hispanic	48	8.0
Non-Hispanic Asian	15	2.5
Non-Hispanic AI/AN	4	0.7
Unknown/other	19	3.2
Average age	47.2 years	
Method		
Firearms	391	65.0
Hanging	129	21.5
Poisoning	39	6.5
Other	41	6.8
Problems		
Acute	966	66.5
Chronic	331	22.8
Acute-on-chronic	156	10.7
Total	1,453	100.0
Context		
Acute only	307	51.2
Acute-on-chronic ^a	293	48.8
Total	600	100.0

Note. AI/AN = American Indian/Alaska Native.

^aIncludes acute plus chronic, chronic and acute-on-chronic, or acute-on-chronic only problems.

Table 4.

Suicides among people with intimate partner problems, criminal legal issues, physical health issues, and/or job/financial issues by race/ethnicity, age, and context ($n = 600$)^a

	A. Intimate partner problems (IPP) Yes, $n = 350$	B. Criminal/legal issues Yes, $n = 304$	C. Physical health issues Yes, $n = 81$	D. Job/financial problems Yes, $n = 135$
Race/ethnicity				
White (%)	65.1	60.9	75.3	77.0
Black	20.3	23.0	7.4	6.7
Hispanic	8.0	10.2	9.9	6.7
Asian	2.9	3.0	2.5	3.7
AI/AN	0.6	1.0	0	0
Unknown/other	2.6	2.0	4.9	5.9
Total %	100	100	100	100
$\chi^2(df)^b$	9.4(5)~	28.8(5)***	7.3(5)	18.8(5)**
Average age (years)	45.7	46.3	52.7	48.6
$t(df)^b$	5.6(598)***	2.8(598)**	-6.9(598)***	-2.4(598)*
Average no. of problem categories experienced ^c	2.5	2.3	2.7	2.8
Context				
Acute issues only	51.1%	54.3	25.9	40.7
Acute and chronic issues ^d	48.9%	45.7	74.1	59.3
$\chi^2(df)$.0002(1) ^b	2.4(1) ^b	23.9(1)*** ^b	7.6(1)** ^b
Premeditation	28.6%	19.4	23.5	22.2
$\chi^2(df)^b$	11.2(1)***	19.4(1)*	23.5	22.2

Note. AI/AN = American Indian/Alaska Native.

^aCategories are not mutually exclusive making column totals add to more than 600.

^bComparison made between those with problem indicated and those without.

^cEleven problem categories possible: mood problems (not clinical), adverse childhood experiences, family history of mental health problems/suicide, other problems of/with family members, intimate partner problems (IPP), other relationship problems, physical health problems, criminal/legal problems, job/financial problems, suicidal ideation, and recreational drug use.

^dIncludes acute plus chronic, chronic and acute-on-chronic, or acute-on-chronic only problems. ~ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.